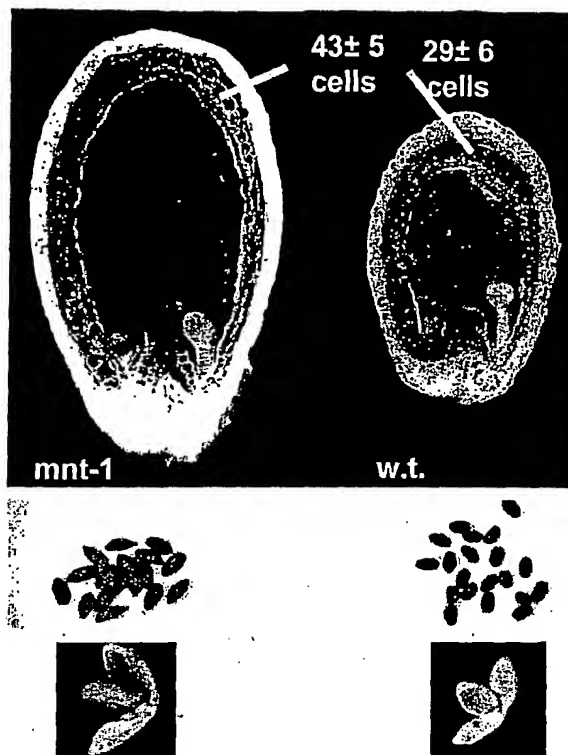


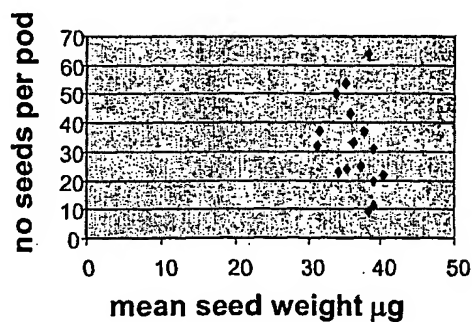
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Figure 1

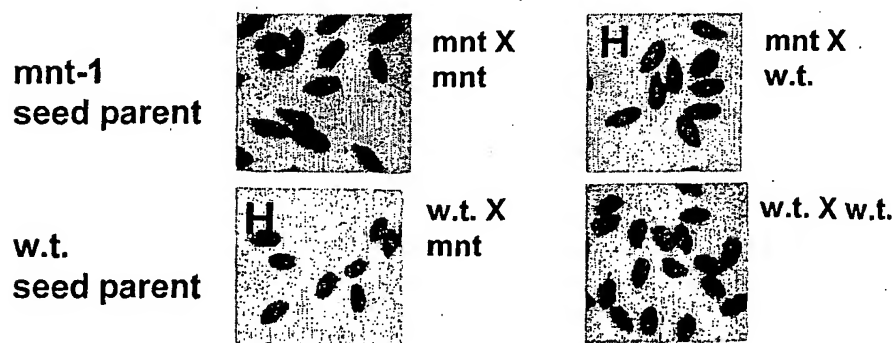
1A mnt-1 vs wild-type seeds



1B Seed weight vs no. seeds per pod in mnt-1



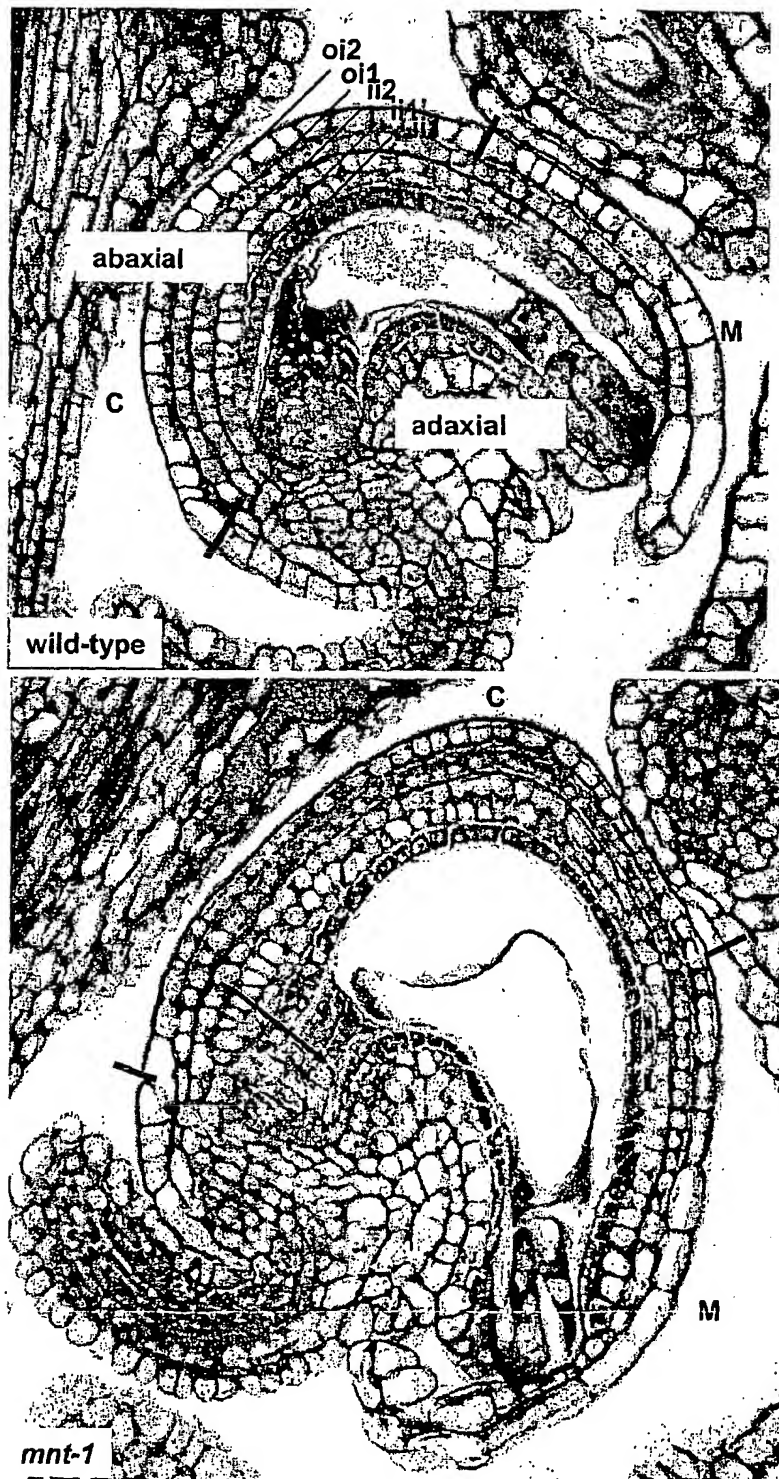
1C Maternal effect of mnt-1 mutation



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Figure 2

2A Mature w.t. and mnt-1 ovules



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2B Cell number and size in w.t. and mnt-1 integuments

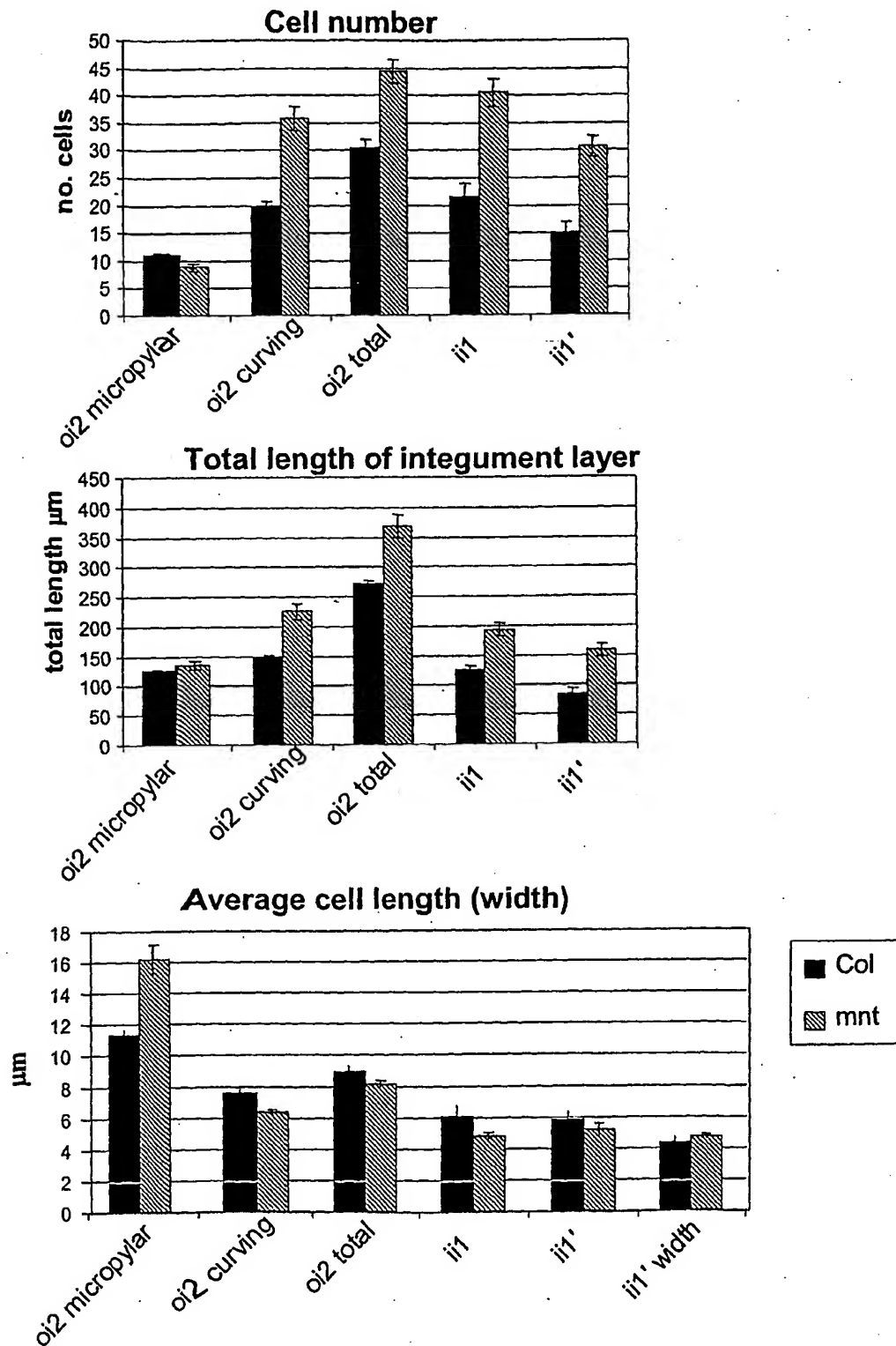


Figure 3

Chalazal endosperm



w.t. 7DAP



mnt-1 7DAP

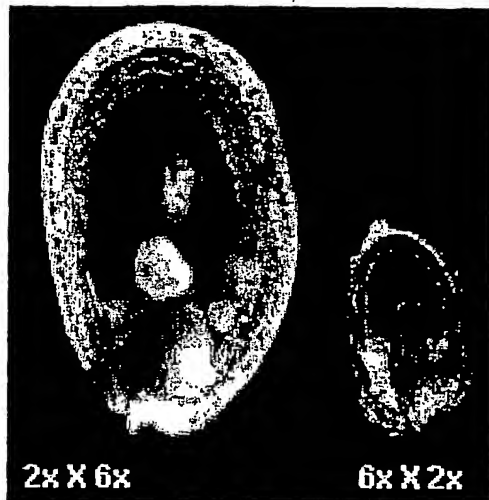


2x X 6x 5 DAP

Bars \approx 50 μ m

Figure 4

4A Endosperm-led growth



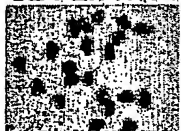
big cavity

normal

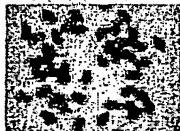
small



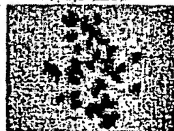
C24 2x X 4x



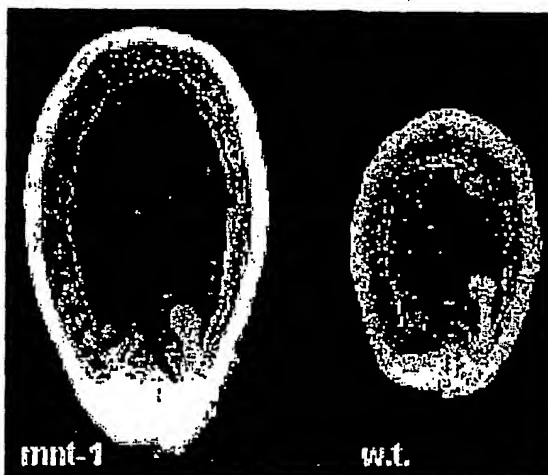
2x X 2x



4x X 2x



4B Integument-led growth



mnt-1

w.t.

big cavity

normal



Col. mnt-1



Col. w.t.



4C 'Big bag' hypothesis: seed and embryo size set by size of the seed cavity

1. Division in endosperm
(maternal and paternal control)
2. Division in integuments/
seed coat (maternal control)

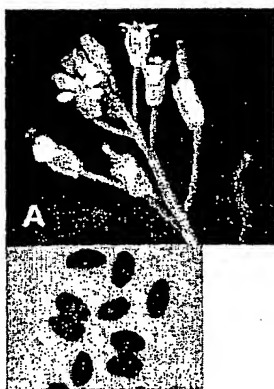
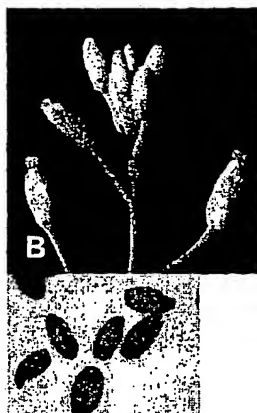


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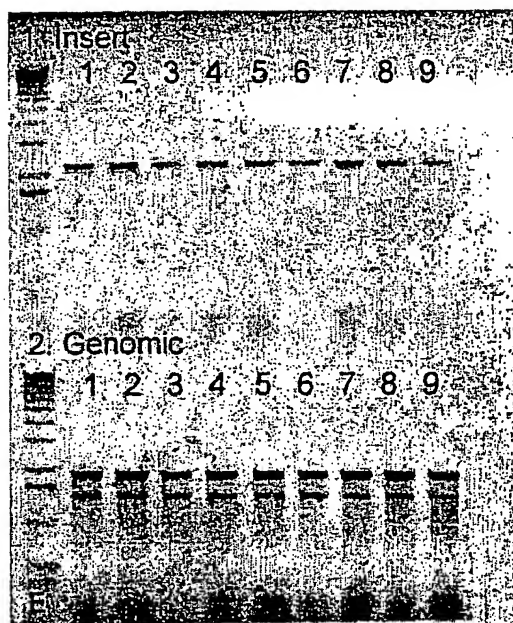
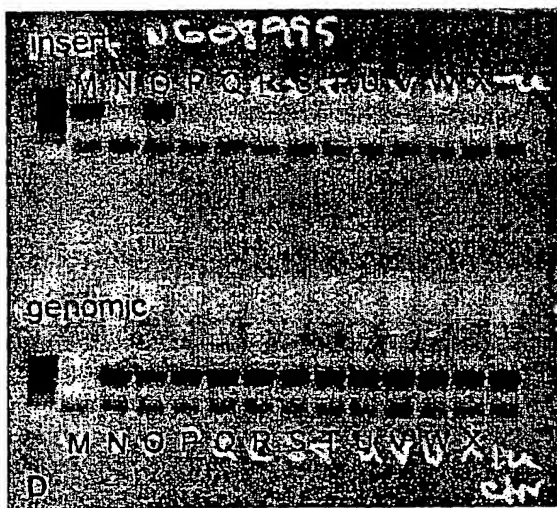
Figure 5

Allelism of *mnt-1* and Salk insertion line 108995

Col-3 w.t.

*mnt-1*

Salk 108995 homozygote

F1 *mnt-1* X Salk 108995

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Figure 6

Alignment of w.t. MNT and mutant mnt-1 cDNA

MNT * 20 * 40 * 60

ATGGCGAGTTCCGAGGTTTCAATGAAAGGTAATCGTGGAGGAGATAACTTCTCCTCCTCT
ATGGCGAGTTCCGAGGTTTCAATGAAAGGTAATCGTGGAGGAGATAACTTCTCCTCCTCT

mnt-1

 * 80 * 100 * 120

GGTTTTAGTGACCCTAAGGAGACTAGAAATGTCTCCGTCGCCGGCGAGGGGCAAAAAGT
GGTTTTAGTGACCCTAAGGAGACTAGAAATGTCTCCGTCGCCGGCGAGGGGCAAAAAGT

 * 140 * 160 * 180

AATTCTACCCGATCCGCTGCGGCTGAGCGTGCTTTGGACCCTGAGGCTGCTCTTTACAGA
AATTCTACCCGATCCGCTGCGGCTGAGCGTGCTTTGGACCCTGAGGCTGCTCTTTACAGA

 * 200 * 220 * 240

GAGCTATGGCACGCTTGTGCTGGTCCGCTTGTGACGGTTCCTAGACAAGACGACCGAGTC
GAGCTATGGCACGCTTGTGCTGGTCCGCTTGTGACGGTTCCTAGACAAGACGACCGAGTC

 * 260 * 280 * 300

TTCTATTTTCCTCAAGGACACATCGAGCAGGTGGAGGCTTCGACGAACCAGGCGGCAGAA
TTCTATTTTCCTCAAGGACACATCGAGCAGGTGGAGGCTTCGACGAACCAGGCGGCAGAA

 * 320 * 340 * 360

CAACAGATGCCTCTCTATGATCTTCCGTCAAAGCTTCTCTGTGCGAGTTATTAATGTAGAT
CAACAGATGCCTCTCTATGATCTTCCGTCAAAGCTTCTCTGTGCGAGTTATTAATGTAGAT

 * 380 * 400 * 420

TTAAAGCGAGAGGCAGATACAGATGAAGTTTATGCGCAGATTACTCTTCTCCTGAGGCT
TTAAAG-----AGGCAGATACAGATGAAGTTTATGCGCAGATTACTCTTCTCCTGAGGCT

 * 440 * 460 * 480

AATCAAGACGAGAATGCAATTGAGAAAGAAGCGCCTCTTCCTCCACCTCCGAGGTTCCAG
AATCAAGACGAGAATGCAATTGAGAAAGAAGCGCCTCTTCCTCCACCTCCGAGGTTCCAG

 * 500 * 520 * 540

GTGCATTGCTTCTGCAAAACCTTGACTGCATCCGACACAAGTACACATGGTGGATTTTCT
GTGCATTGCTTCTGCAAAACCTTGACTGCATCCGACACAAGTACACATGGTGGATTTTCT

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* 560 * 580 * 600
GTTCTTAGGCGACATGCGGATGAATGTCTCCACCTCTGGATATGTCTCGACAGCCTCCC
GTTCTTAGGCGACATGCGGATGAATGTCTCCACCTCTGGATATGTCTCGACAGCCTCCC

* 620 * 640 * 660
ACTCAAGAGTTAGTTGCAAAGGATTTGCATGCAAATGAGTGGCGATTGAGACATATATTC
ACTCAAGAGTTAGTTGCAAAGGATTTGCATGCAAATGAGTGGCGATTGAGACATATATTC

* 680 * 700 * 720
CGGGGTCAACCACGGAGGCATTTGCTACAGAGTGGGTGGAGTGTGTTTGTAGCTCCAAA
CGGGGTCAACCACGGAGGCATTTGCTACAGAGTGGGTGGAGTGTGTTTGTAGCTCCAAA

* 740 * 760 * 780
AGGCTAGTTGCAAGCGATGCGTTTATATTTCTAAGGGGCGAGAATGGAGAATTAAGAGTT
AGGCTAGTTGCAAGCGATGCGTTTATATTTCTAAGGGGCGAGAATGGAGAATTAAGAGTT

* 800 * 820 * 840
GGTGTAAAGCGTGCGATGCGACAACAAGGAAACGTGCCGTCTTCTGTTATATCTAGCCAT
GGTGTAAAGCGTGCGATGCGACAACAAGGAAACGTGCCGTCTTCTGTTATATCTAGCCAT

* 860 * 880 * 900
AGCATGCATCTTGGAGTACTGGCCACCGCATGGCATGCCATTTCAACAGGGACTATGTTT
AGCATGCATCTTGGAGTACTGGCCACCGCATGGCATGCCATTTCAACAGGGACTATGTTT

* 920 * 940 * 960
ACAGTCTACTACAAACCCAGGACGAGCCCATCTGAGTTTATTGTTCCGTTGATCAGTAT
ACAGTCTACTACAAACCCAGGACGAGCCCATCTGAGTTTATTGTTCCGTTGATCAGTAT

* 980 * 1000 * 1020
ATGGAGTCTGTTAAGAATACTACTCTATTGGCATGAGATTCAAAATGAGATTGGAAGGC
ATGGAGTCTGTTAAGAATACTACTCTATTGGCATGAGATTCAAAATGAGATTGGAAGGC

* 1040 * 1060 * 1080
GAAGAGGCTCCTGAGCAGAGGTTTACTGGCACAAATCGTTGGGATTGAAGACTCTGATCCT
GAAGAGGCTCCTGAGCAGAGGTTTACTGGCACAAATCGTTGGGATTGAAGACTCTGATCCT

* 1100 * 1120 * 1140
ACTAGGTGGCCAAAATCAAAGTGGAGATCCCTCAAGGTGAGATGGGATGAGACTTCTAGT
ACTAGGTGGCCAAAATCAAAGTGGAGATCCCTCAAGGTGAGATGGGATGAGACTTCTAGT

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* 1160 * 1180 * 1200
ATTCTCGACCTGATAGAGTATCTCCGTGGAAAGTAGAGCCAGCTCTTGCTCCTCCTGCT
ATTCTCGACCTGATAGAGTATCTCCGTGGAAAGTAGAGCCAGCTCTTGCTCCTCCTGCT

* 1220 * 1240 * 1260
TTGAGTCCTGTTCCAATGCCCTAGGCCTAAGAGGCCAGATCAAATATAGCACCTTCATCT
TTGAGTCCTGTTCCAATGCCCTAGGCCTAAGAGGCCAGATCAAATATAGCACCTTCATCT

* 1280 * 1300 * 1320
CCTGACTCTTCGATGCTTACCAGAGAAGGTACAACCTAAGGCAAACATGGACCCCTTTACCA
CCTGACTCTTCGATGCTTACCAGAGAAGGTACAACCTAAGGCAAACATGGACCCCTTTACCA

* 1340 * 1360 * 1380
GCAAGCGGACTTTCAAGGCTCTTGCAAGGTCAAGAATACTCGACCTTGAGGACGAAACAT
GCAAGCGGACTTTCAAGGCTCTTGCAAGGTCAAGAATACTCGACCTTGAGGACGAAACAT

* 1400 * 1420 * 1440
ACTGAGAGTGTAGAGTGTGATGCTCCTGAGAATTCTGTTGTCTGGCAATCTTCAGCGGAT
ACTGAGAGTGTAGAGTGTGATGCTCCTGAGAATTCTGTTGTCTGGCAATCTTCAGCGGAT

* 1460 * 1480 * 1500
GATGATAAGGTTGACGTGTTTTCGGGTTCTAGAAGATATGGATCTGAGAACTGGATGTCC
GATGATAAGGTTGACGTGTTTTCGGGTTCTAGAAGATATGGATCTGAGAACTGGATGTCC

* 1520 * 1540 * 1560
TCAGCCAGGCATGAACCTACTTACACAGATTTGCTCTCCGGCTTTGGGACTAACATAGAT
TCAGCCAGGCATGAACCTACTTACACAGATTTGCTCTCCGGCTTTGGGACTAACATAGAT

* 1580 * 1600 * 1620
CCATCCCATGGTCAGCGGATACCTTTTTATGACCATTCATCATCACCTTCTATGCCTGCA
CCATCCCATGGTCAGCGGATACCTTTTTATGACCATTCATCATCACCTTCTATGCCTGCA

* 1640 * 1660 * 1680
AAGAGAATCTTGAGTGATTCAGAAGGCAGTTTCGATTATCTTGCTAACCAGTGGCAGATG
AAGAGAATCTTGAGTGATTCAGAAGGCAGTTTCGATTATCTTGCTAACCAGTGGCAGATG

* 1700 * 1720 * 1740
ATACACTCTGGTCTCTCCCTGAAGTTACATGAATCTCCTAAGGTACCTGCAGCAACTGAT
ATACACTCTGGTCTCTCCCTGAAGTTACATGAATCTCCTAAGGTACCTGCAGCAACTGAT

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* 1760 * 1780 * 1800
ECGTCTCTCCAAGGGCGATGCAATGTTAAATACAGCGAATATCCTGTTCTTAATGGTCTA
ECGTCTCTCCAAGGGCGATGCAATGTTAAATACAGCGAATATCCTGTTCTTAATGGTCTA

* 1820 * 1840 * 1860
TCGACTGAGAATGCTGGTGGTAACTGGCCAATACGTCCACGTGCTTTGAATTATTATGAG
TCGACTGAGAATGCTGGTGGTAACTGGCCAATACGTCCACGTGCTTTGAATTATTATGAG

* 1880 * 1900 * 1920
GAAGTGGTCAATGCTCARGCGCAAGCTCAGGCTAGGGAGCAAGTAACAAAACAACCCTTC
GAAGTGGTCAATGCTCARGCGCAAGCTCAGGCTAGGGAGCAAGTAACAAAACAACCCTTC

* 1940 * 1960 * 1980
ACGATACAAGAGGAGACAGCAAGTCAAGAGAAGGGAACTGCAGGCTCCTTTGGCATTTCCT
ACGATACAAGAGGAGACAGCAAGTCAAGAGAAGGGAACTGCAGGCTCCTTTGGCATTTCCT

* 2000 * 2020 * 2040
CTGACCAACAACATGAATGGGACAGACTCAACCATGTCTCAGAGAAACAACCTTGAATGAT
CTGACCAACAACATGAATGGGACAGACTCAACCATGTCTCAGAGAAACAACCTTGAATGAT

* 2060 * 2080 * 2100
GCTGCGGGGCTTACACAGATAGCATCACCBAAGGTTGAGGACCTTTGAGATCAGTCAAAA
GCTGCGGGGCTTACACAGATAGCATCACCBAAGGTTGAGGACCTTTGAGATCAGTCAAAA

* 2120 * 2140 * 2160
GGGTCAAAATCAACAAACGATCATCGTGAACAGGGAAGACCATTCCAGACTAATAATCCT
GGGTCAAAATCAACAAACGATCATCGTGAACAGGGAAGACCATTCCAGACTAATAATCCT

* 2180 * 2200 * 2220
CATCCGAAGGATGCTCAAACGAAAACCAACTCAAGTAGGAGTTGCACAAAGGTTACACAG
CATCCGAAGGATGCTCAAACGAAAACCAACTCAAGTAGGAGTTGCACAAAGGTTACACAG

* 2240 * 2260 * 2280
CAGGGAATTGCACTTGGCCGTTGAGTGGATCTTTCAAAGTTCCAAAACCTATGAGGAGTTA
CAGGGAATTGCACTTGGCCGTTGAGTGGATCTTTCAAAGTTCCAAAACCTATGAGGAGTTA

* 2300 * 2320 * 2340
GTCGCTGAGCTGGACAGGCTGTTTGAGTTCAATGGAGAGTTGATGGCTCCTAAGAAAGAT
GTCGCTGAGCTGGACAGGCTGTTTGAGTTCAATGGAGAGTTGATGGCTCCTAAGAAAGAT

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* 2360 * 2380 * 2400
TGGTTGATAGTTTACACAGATGAAGAGAATGATATGATGCTTGTTGCTGACGATCCTTGG
TGGTTGATAGTTTACACAGATGAAGAGAATGATATGATGCTTGTTGCTGACGATCCTTGG

* 2420 * 2440 * 2460
CAGGAGTTTTGTTGCATGCTTCGCAAAATCTTCATATACACGAAAGAGGAAGTGAGGAAG
CAGGAGTTTTGTTGCATGCTTCGCAAAATCTTCATATACACGAAAGAGGAAGTGAGGAAG

* 2480 * 2500 * 2520
ATGAACCCGGGGACTTTAAGCTGTAGGAGCGAGGAAGAAGCAGTTGTTGGGGAAGGATCA
ATGAACCCGGGGACTTTAAGCTGTAGGAGCGAGGAAGAAGCAGTTGTTGGGGAAGGATCA

* 2540 * 2560 * 2580
GATGCAAAGGACGCCAAGTCTGCATCAAATCCTTCATTGTCCAGCGCTGGGAACCTCTTAA
GATGCAAAGGACGCCAAGTCTGCATCAAATCCTTCATTGTCCAGCGCTGGGAACCTCTTAA

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Figure 7**Alignment of w.t. MNT and mutant mnt-1 protein**

MNT	*	20	*	40	*	60
MASSEVSMKGNRGGDNFSSSGFSDPKETRNVS VAGEGOKSNSTRSAAAERALDPEAALYR						
MASSEVSMKGNRGGDNFSSSGFSDPKETRNVS VAGEGOKSNSTRSAAAERALDPEAALYR						
mnt-1						
	*	80	*	100	*	120
ELWHACAGPLVTVP RQDDRVFYFPQGHIEQVEASTNQAAEQOMPLYDLPSKLLCRVINVD						
ELWHACAGPLVTVP RQDDRVFYFPQGHIEQVEASTNQAAEQOMPLYDLPSKLLCRVINVD						
	*	140	*	160	*	180
LKAEADTDEVYAOITLLPEANODENATEKEAPLPPPPRQVHSFCKELTASDTSTHGGS						
LKROIQMKFMRRLLEFLRLIKTRMQLRKKRLLEHRCGRSRS AKP-----						
	*	200	*	220	*	240
VLRRHADECLPPLDMSRQPPTQELVAKDLHANEWFRHIFRGQPRRHLLQSGWSVFVSSK						

	*	260	*	280	*	300
RLVAGDAEILIRGENGELRVGVRRAMROOGNVPSVVISSSHMLGVLATAWHAISTGTME						

	*	320	*	340	*	360
TVYYKPRTPSPERTVPEDQYMESVIGNYISGMRFKMRFECEEAPEORETGTIVGIEESDP						

	*	380	*	400	*	420
TRWPKSKWRSLKVRWDETSSIPRPDRVSPWKVEPALAPPALSPVPMRPDRKPRRSNIAPSS						

	*	440	*	460	*	480
PDSSMLTREGTTKANMDPLPASGLSRVLOGOEYSTLR TKHTESVECDAPENSVVWQSSAD						

	*	500	*	520	*	540
DDKVDVVS GSRRYGSENWMSSARHEPTYTDLLSGFGTNIDPSHGORIPFYDHSSSPSMPA						

	*	560	*	580	*	600
KRILSDSECKFDYLANQWQMIHSGLSLKLHESPKVPAATDASLOGRCNVKYSEYPVINGL						

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* 620 * 640 * 660
STENAGGNNPIRPRAINYYEEVVNAQQAQAREQVTKOPFTIQEETAKSREGNCRLEGIP

* 680 * 700 * 720
LTNNMNGTDSTMSQRNNLNDAAGLTQIASPKVQDLSDQSKGSKSTNDHREOGRPFQTNNE

* 740 * 760 * 780
HPKDAQTKTNSRSCTKVHKOGIALGRSVDLSEFQNYEELVAELDRLEEFNGELMAPKKD

* 800 * 820 * 840
WLTIVYIDEENDMLEVGDDPWQEECCMVRKIFLYTKEEVRRMNPCTLSCRSEEEAVVGEGS

*
DAKDAKSASNPSSLSSAGNS

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Figure 8

Alignment of MNT and BnARF2 cDNA

MNT

20 40 60

ATGGCGAGTTTCGGAGGTTTCAATGAAAGGTAATCGTGGAGGAGATAAAGTTCTCCTCC
 ATGGCGAGTTTCGGAGGTTTCTATGAAAGGTAATCGTGGAGGAGGAGATAAAGTTCTCCTCC

BnARF2

80 100 120

TCTGTTTATAGTGACCCDAGGGAGACAGAAATGTCGCGTCGCGCGGCGAGGGGCAGAAA
 GCTGTTTATAGTGACCC-----GAC-----G-----GTCGCGCGGCGAGGGGCAGAAA

140 160 180

AGTAATTTCTACCCGATCCGCTGCGGCTGAGCGTGCTTTGACCCCTGAGGCTGCTCTTTAC
 ACTCAGTCTAACCGATCTGTGCTGCAGAGCGCGTTGTGACCCGGAAGCTGCTCTCTAC

200 220 240

AGAGAGCTATGGCAGCCTTGCTGCTGCTCCGCTTGTGACGCTTCCTAGACAAGAGGACCGA
 CGTGAAGCTGTGGCAGCCTTGCTGCTGCTCCTCTGTGACAGTCCCTAGACAAGATGACCGA

260 280 300

GTCTTCTATTTTCCTCAAGGACACATCGAGCAGGTGGAGGCTTCGACGAAACAGGCGGCA
 GTCTTCTATTTTCCTCAAGGACACATCGAGCAGGTGGAGGCTTCGACGAAATCAAGCTGCA

320 340 360

GAACAACAGATGCCTCTCTATGATCTTCCTTCAGAGCTTCTCTGTGCGAGTTATTAAATGTA
 GAACAGCAGATGCCTCTCTATGATCTTCCTTCAGAGATCCTTGTGCGTGTATTAAATGTT

380 400 420

GATTTAAAGGCAGAGGCAGATACAGATGAAGTTTATGCGCAGATTACTCTTCTTCCCTGAG
 GATTTAAAGGCAGAGGCAGACACCGAGGAAGTTTATGCGCAGATTACTCTTCTTCCGAG

440 460 480

GCTAATCAAGACGAGAATCAATAGAGAAAGAGCGCCTCTTCCTCCACCTCCGAGGTTT
 CCTGTTCAAGACGAGAATCAATAGAGAAAGAGCGCCTCTTCCTCCGCCCAAGGTTT

500 520 540

CAGGTGCAATTCGTTCTGCAAAACCTTGACTGCATCGACACAAGTACACATGGTGGATTT
 CAAGTGCAATTCGTTCTGCAAAACCTTGACTGCATCGACACAAGTACACATGGTGGATTT

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* 560 * 580 * 600
TCTGTTCTTAGGCGACATGCGGATGAATGTCTCCACCTCTGGATATGTCTCGACAGCCT
TCTGTTCTTAGGCGGACATGCGGATGAATGTCTCCACCTCTGGATATGTCTCGACAGCCT

* 620 * 640 * 660
CCCACTCAAGAGTTAGTTGCAAAAGATTTGCATGCAAAATGAGTGGCGATTTCAGACATATA
CCTACTCAGGAGTTAGTTGCAAAAGATTTGCATGCAAAAGAGTGGCGATTTCAGACATATA

* 680 * 700 * 720
TTCCGAGGTCAACCACGAGGCAATTTGCTACAGAGTGGGTGGAGTGTGTTTGTAGCTCC
TTCCGAGGTCAACCACGAGGCAATTTGCTACAGAGTGGGTGGAGTGTGTTTGTAGCTCC

* 740 * 760 * 780
AAAAGGCTAGTTGCAGGCGATGCGTTTATATTTCTAAGGGGCGAGAATGAGAAATTAAAG
AAGAGGCTAGTTGCAGGCGATGCGTTTATATTTCTAAGGGGCGAGAATGAGAAATTAAAG

* 800 * 820 * 840
GTTGGTGTAAGGCGTGCGATGCGACAAACAGGAATGTTGCCGTCCTCTGTTATATCTAGC
GTTGGTGTAAGGCGTGCAATGCGGACAAACAGGAATGTTGCCATCCTCTGTTATATCAAGC

* 860 * 880 * 900
CATAGCATGCATCTTGGAGTAGTGGCCACCGCATGGCATGCCATTTCAACAGGGAATATG
CACAGCATGCATCTTGGAGTAGTGGCCACTGCGTGGCAGGCTATTTCAACTGGAAACATG

* 920 * 940 * 960
TTTACAGTCTACTACAAACCAGGACGAGCCCATCTGAGTTTATTGTTCCGTTTGATCAG
TTTACAGTCTACTATAAACCAGGACTAGTCCCTCAGAGTTTATTGTTCCGTTTGATCAG

* 980 * 1000 * 1020
TATATGGAGTCTGTAAAGATTAAGTACTCTATTTGGCATGAGATTCAAAATGAGATTTGAA
TATACGGAGTCTGTAAAGATTAAGTACTCTATTTGGCATGAGATTCAAAATGAGATTTGAA

* 1040 * 1060 * 1080
GGCGAAGAGGCTCCGAGCAGAGGTTTACTGGCACAATCGTTGGGATTGAAGACTCTGAT
GGCGAAGAGGCTCCGAGCAGAGGTTTACTGGCACAATCGTTGGGATTGAAGACTCTGAT

* 1100 * 1120 * 1140
CCTACTAGGTGGCCAAATCAAAAGTGGAGATCCCTCAAGGTGAGATGGGATGAGACTTCT
CCACAGGTGGCCAAATCAAAAGTGGAGATCCCTCAAGGTACGGTGGGATGAGACCACT

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* 1160 * 1180 * 1200
AGTATTCTCTCGACCTGATAGAGTATCTCCGTGGAAAGTAGAGCCAGCTCTTGCTCCTCCT
AGTATTCTCTCGACCTGATAGAGTATCTCCGTGGAAAGTAGAGCCAGCTCTTTCTCCTCCT

* 1220 * 1240 * 1260
GCTTTGAGTCCCTGTCCAATGCCTAGGCCCTAAGAGGCCAGATCAATATAGCAGCTTCA
GCTTTGAGTCCCTGTCCAATGCCTAGGCCCTAAGAGGCCAGATCTAATCTAGCTTCTTCA

* 1280 * 1300 * 1320
TCTCCTGACTCTTCGATGCTTACCAGAGAGGGTCAACTAAGGCCAAACATGGACCCTTTA
ACTCCGACTCTTCGATGCTTACCAGAGAGGGTCAACTAAGGCCAAACATGGACCCTTTA

* 1340 * 1360 * 1380
CCAGCAAGCGGACTTCAAGGGTCTTGCAAGGTCAAGAAATCTCGACCTTGAGACGAAA
CCGCAAGTGGACTTCAAGGGTCTTGCAAGGTCAAGAAATCTCGACCTTGAGACGAAA

* 1400 * 1420 * 1440
CATACTGAGAGTGTAGAGTGTGATGCTCCTGAGAAATTCCTGTTGTGTGGCAATCTTCAGCG
CATGTTGAGAGTGTAGAGTGTGATGCTCCTGAGAAATTCCTGTTGTGTGGCAATCTTCAGCG

* 1460 * 1480 * 1500
GATGATGAAAGGTTGAGGTGCTTTCGGCTTCTAGAGATATGGATCTGAGAACTGGATG
GATGATGAAAGGTTGAGGTGCTTTCAGCTTCTAGAGATATG-----AGAACTGGATA

* 1520 * 1540 * 1560
TCCTCAGCGAGGCATGAACCTACTTACACAGATTGCTCTCGGCTTTGGGACTAACATA
TCCTCAGGTAGGCATGAACCTACTTACACAGATTGCTCTCGGCTTTGGGACTAACATA

* 1580 * 1600 * 1620
GATCCATCGCATGGTCAGCGGATACCTTTTTATGACCAATT---CATCATCACCTTCTATG
GATCCATCGCATGGTCAGCGGATACCTTTTTATGACCAATTATCATCATCACCTTCTATG

* 1640 * 1660 * 1680
CCTGCAGAGAGAAATCTTCAGTGAATCAGAGGCAAGTTGAAATATCTTGCTAACCACTGG
CCTGCAGAGAGAAATCTTCAGTGAATCAGAGGCAAGTTGAAATATCTTGCTAACCACTGG

* 1700 * 1720 * 1740
GAGATGATACACTCTGGTCTTCCCTGAAGTTACATGAATCTCCTAAAGTCCCTGCCGCA
---ATGATGCACTCAGGCCTTCCCTGAAGTTACATGAATCTCCTAAAGTCCCTGCCGCA

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* 1760 * 1780 * 1800
ACTGATGCCCTCTCTCCAAGGGCGATGCAATGTTAAATACAGCGAATATCCTGTTCTTAAT
TCTGATGCCCTCTTCCAAGGGGATAGGCAATGCCAATACAGCGAATATGCTTTGCCCTCGT

* 1820 * 1840 * 1860
GGTCTATCGACTGAGAATGCTGCTGGTAACTGGCCAATACGTCCACGTGCTTTGAATTAT
GGAGTGAAGACTGAGAATGCTGCTGGTAACTGGCCAATACGTCCACGTGCTTTGAATTAT

* 1880 * 1900 * 1920
TATGAGGAAGTGGTCAATGGCTCAGCGCATGCTCAGGCTAGCGAGCATGTACAAATCAA
TTTGAAGGAAGGGT-----TCAT-----GCTCAGGCTAGCGAGCATGTGACAAATCGT

* 1940 * 1960 * 1980
CCCTTCA--CGATACAAGAGGAGACAGCAAGTCAAGAGAAAGGAAGTGCAGGCTCTTTG
CC-TCCGCTCG-TACAAGAGGAGGACAGCAAGGCAAGAGACAGGAAGTGCAGGCTCTTTG

* 2000 * 2020 * 2040
GCATTCTCTGACCAACAACATGAATGGGACAGACTCAACCATGTCTCAGAGAAACAAT
GCATTCTCTGCTGAACAACGTGAATGGGACAGATCAACCTTGTCTCAGAGAAACAATT

* 2060 * 2080 * 2100
TGAATGATGCTGCGGGGCTTACACAGATAGCATCACCAAGGTTCCAGGACTTTTCAGATC
TGAATGACCTGCGGGGCTTACGAGATGSCATCACCAAGGTTCCAGGACTTTTCAGATC

* 2120 * 2140 * 2160
AGTCAAAAGGGTCAAAATCAACAAAGATCATCGTGAACAGGGAGACCATTCCAGACTA
AGTCAAAAGGGTCAAAATCGACAAATGATCATCGTGAACAGGGAGACCATTCCAGACTA

* 2180 * 2200 * 2220
ATAATCCTCATCCGAAGGATGCTCAAAACGAAACCAACTCAAGTAGGAGTTGCACAAAGG
GTAAACCCCATCCGAAGAGCTTCAAAACGAAACCAACTCAAGTAGGAGTTGCACAAAGG

* 2240 * 2260 * 2280
TTCACAAGCAGGGAATTGCACTTGGCCGTTCAAGTGGATCTTTCAAAGTTCCAAGACTATG
TTCACAAGCAGGGAATTGCACTTGGCCGTTCAAGTGGATCTTTCAAAGTTCCAAGACTATG

* 2300 * 2320 * 2340
AGGAGTTAGTGGCTGAGCTGGACAGGCTGTTTGAGTTCAATGGAGAGTTGATGGCTCCTA
AGGAGTTGGTGAATGGAATAGGCTGTTTGAGTTCAATGGAGAGTTGATGGCTCCTA

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* 2360 * 2380 * 2400
AGAAAGATTGGTTCATAGTTTACACAGATGAGAGAAATGATATGATGCTTGTTGGTGACG
AGAAAGATTGGTTCATAGTTTACACAGATGAGAGAAATGATATGATGCTTGTTGGTGACG

* 2420 * 2440 * 2460
ATCCTTGGCAGGAGTTTTGTTGCATGGTTCCAAAATCTTCATATACACGAAACAGGAGG
ATCCTTGGCAGGAGTTTTGTTGCATGGTTCCAAAATCTTCATATACACGAAACAGGAGG

* 2480 * 2500 * 2520
TGAGGAAGATGAACCCGGGGACTTTAAGCTGTAGGAGCGAGGAAGAAGCAGTTGTTGGGG
TGAGGAAGATGAACCCGGGGACTTTAAGCTGTAGGAGCGAGGAAGAAGCAGTTGTTGGGG

* 2540 * 2560 * 2580
AAGGATCAGATGCAAAGGACGCGAAGTCTGCATCAAATCCTTCATTGTCCAGCGCTGGCA
AAGGATCAGATGCAAAGGACGCGAAGTCTGCATCAAATCCTTCATTGTCCAGCGCGGAA

ACTCTTAA
ACTCTTAA

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Figure 9

Alignment of MNT, BnARF2, OsARF2 proteins

```

      *           20           *           40           *
MNTwt : MASSEVSMKGNRG-EDNFSSSGFSDPKETRNVSVAGEGQKSNSTRSAAERALDP
BnARF2: MASSEVSMKGNRCRGENFSSAGYSDP-----TVAGEAQKTQSNRSVAAERVVDP
OsARF2: -----GDP

```

```

      60           *           80           *           100           *
MNTwt : EAALYRELWHACAGPLVTVPRODDR VFYFPQGHIEQVEASTNOAAEQOMPLYDLP
BnARF2: EAALYRELWHACAGPLVTVPRODDR VFYFPQGHIEQVEASTNOAAEQOMPLYDLP
OsARF2: ---LYDELWHACAGPLVTVP RVGDL VFYFPQGHIEQVEASMNQVADSOMRLYDLP

```

```

      120           *           140           *           160
MNTwt : SKILCRVINVDLKAEDTDEVYAOITLLIPEANODENATEKEADLPPP---PRFQVH
BnARF2: SKILCRVINVDLKAEDTDEVYAOITLLIPEEPVODENSIEKEADLPPP---PRFQVH
OsARF2: SKILCRVINVELKAEQDTDEVYAOVIMLMPEEPQNEMAVEKTTTETSGEVOARPPVR

```

```

      *           180           *           200           *           220
MNTwt : SFCKTLTASDTSTHGGF SVLRRHADECLPPLDMSKQPPTQELVAKDLHANEWRFR
BnARF2: SFCKTLTASDTSTHGGF SVLRRHADECLPPLDMSKQPPTQELVAKDLHASEWRFR
OsARF2: SFCKTLTASDTSTHGGF SVLRRHADECLPPLDMTQSPPTQELVAKDLHSMDWRFR

```

```

      *           240           *           260           *
MNTwt : HIFRGQPRRHLLQSGWSVFVSSKRLVAGDAFIFIRGENGELRVGVRRAMROQENV
BnARF2: HIFRGQPRRHLLQSGWSVFVSSKRLVAGDAFIFIRGENGELRVGVRRAMROQENV
OsARF2: HIFRGQPRRHLLQSGWSVFVSSKRLVAGDAFIFIRGENGELRVGVRRAMROL SNV

```

```

      280           *           300           *           320           *
MNTwt : PSSVISSSHSMHLGVLATAWHAISTGIMFTVYYKPRTSPSEFIIPEDQYME SVKNN
BnARF2: PSSVISSSHSMHLGVLATAWHAISTGIMFTVYYKPRTSPSEFIIPEDQYTESVKNN
OsARF2: PSSVISSQSMHLGVLATAWHAINTKSMFTVYYKPRTSPSEFIIPYDQYME SVKNN

```

```

      340           *           360           *           380
MNTwt : YSIGMRFKMRFE GEEAPEQRFTGTITGIEESDPTRWPKSKWRS LKVRWDETSSIP
BnARF2: YSIGMRFKMRFE GEEAPEQRFTGTITGIEESDPTRWPKSKWRS LKVRWDETSSIP
OsARF2: YSVGMRFKMRFE GEEAPEQRFTGTITGISENLDPV-WPESSWRS LKVRWDEPSTIP

```

```

      *           400           *           420           *           440
MNTwt : RPDRVSPWKVEPALAPPALSPVPMRPKRPRSNIAPSSPDSSMTTREGITKANMD
BnARF2: RPDRVSPWKTEPALSPPALSPVPMRPKRPRSNIAPSSPDSSMTTREGITKANMD
OsARF2: RPDRVSPWKTEPASSEP-VNPLPLSRVKRPRNPAPASPESEPTITKEAATKVDTD

```

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* 460 * 480 *
 MNTwt : PLPA--SELSEVLQGEYSTLRKHTESVECDAPENS--VVWQSSADDINKVDVVS
 BnARF2: PLPA--SELSEVLQGEYPTLRKHTESVECDAPENS--VVWQSSDDDKVDVISA
 OsARF2: PAQAQRSONSTVLQGEOMTLRSNLIESNDSQVTAHKPMWSPSPNAAKAHPLTF

500 * 520 * 540 *
 MNTwt : SRRYGSENWMSSARHEPTYIDLLSGFGTNIDPSHGQRIIFYDH--SSSPSMPA--KR
 BnARF2: SRRY--ENWISSGRHGPTCIDLLSGFGTNIEPDEGHQIIFYDRLSSPPSVAA--RK
 OsARF2: QQRPPMDNWMOLERRRDTDFKDVRSQ--SQSFGDSEGFQNFDE--AENRLTSEKN

560 * 580 * 600
 MNTwt : ILSDSEGFEDYLANQWMIHSGLSLKIHE SPKVPAAATDASLOERCNVKYSMPVL
 BnARF2: ILSDQDGFEDYLANQW--MHSGLSLKIHE SPKVPAAASDASFOGIGNPNYGEALP
 OsARF2: QFQDQ--GSARHFSDPYYYV-----SPQPSLTVESSTOMHTDSK--ELHFW

* 620 * 640 * 660
 MNTwt : NGLSTENAGGNWPIRPRALNYEEVVAQAQAQAR--EQ--VTKQFTIQE--ETAK
 BnARF2: RAVTTENAAGNWPPIRPRALNYEEAVHAQ-----AR--EH--VTKRPAVVQE--EAK
 OsARF2: NGQST--VYGNSRDNPONFRFEQNSSSWLNQSFARPEQPRVIRPHASTAPVELEK

* 680 * 700 *
 MNTwt : SREGNCRLEFGIPL--TNM--NETDSTMSQENN--LNDAGLTQHASPKVQDLSDQ
 BnARF2: PRDGNCRLEFGIPL--VMNV--NETDTLSQENN--LNDPAGPTOMASPKVQDLSDQ
 OsARF2: TEGSGFKIFGFKVDITNAPNNHLSSPMAATHEPMLQTPSSINLOLPVQDCIPEV

720 * 740 * 760 *
 MNTwt : SKGSKSTNDHREQGRFFQTNNEHPKDAQTKTN--SSRSCTKVHKQGLALGRSVDL
 BnARF2: SKGSKSTNDHREQGRFFVSKHPKDVQTKTN--SSRSCTKVQKQGLALGRSVDL
 OsARF2: SVSTAGLATENEKSG--QQAQSSKDVOSKIQVASTRSCTKVHKQGLALGRSVDL

780 * 800 * 820
 MNTwt : SKFQNYEELVAELDLFEFGELMAPKKDWLIVYTDDENDMMVLGDDPWQEFCCM
 BnARF2: SKFQNYEELVTELDLFEFGELMAPKKDWLIVYTDDENDMMVLGDDPWQEFCCM
 OsARF2: SKFSNYDELKAEIDKMEFDGELVSSNKNWQIVYTDNEGDMMLVGDDPWEEFCSI

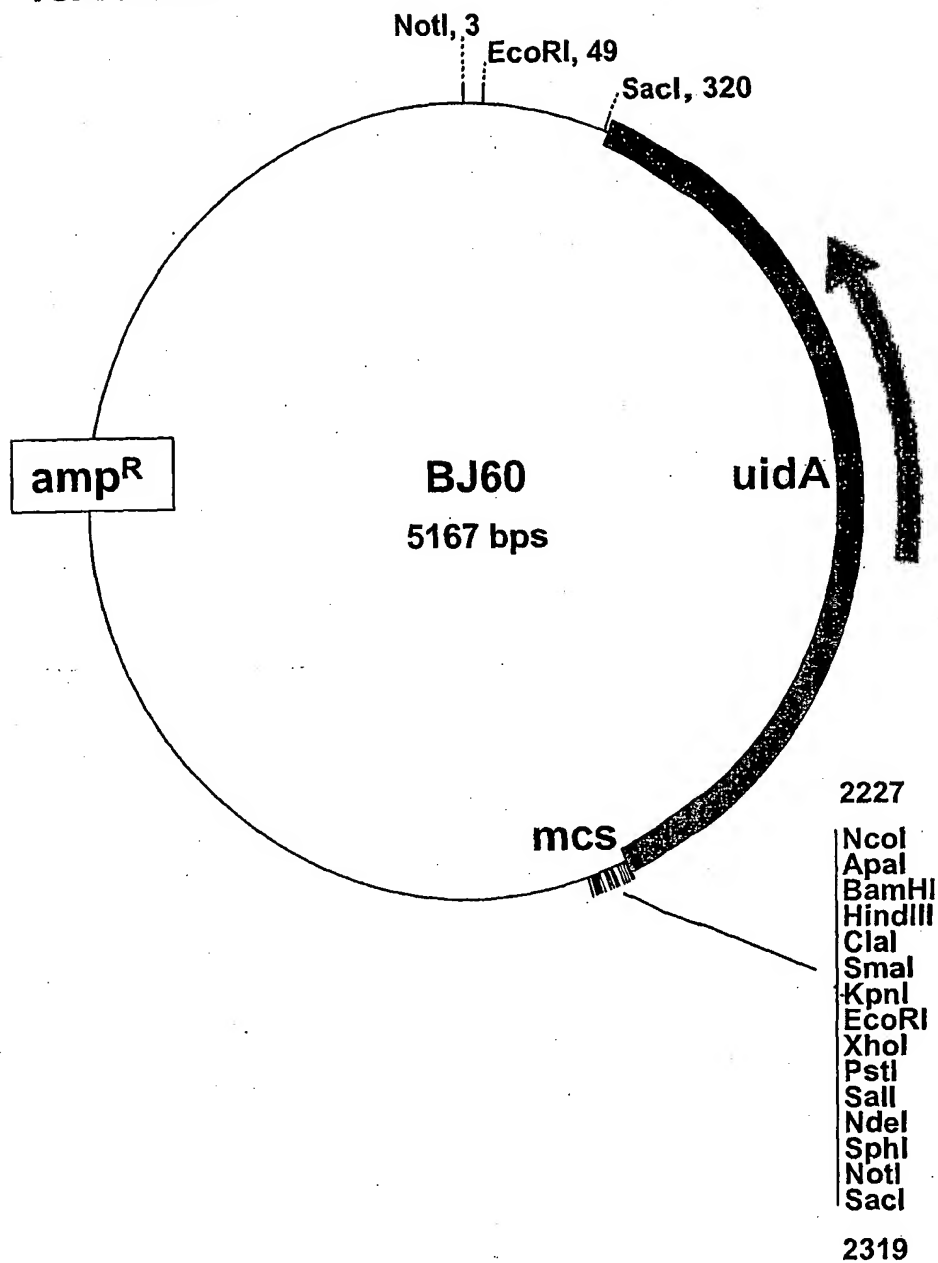
* 840 * 860 *
 MNTwt : VRKIFYLYTKEEVVKMNPGLLS--SRSEEEAVV--GEGSDAKDAKSASNP--SLSSAGNS
 BnARF2: VRKIFYLYTKEEVVKMNPGLLCC--RNEEEP--V--GEGSDAKDAKSASNP--SLSSAGNS
 OsARF2: VRKIYLYTKEEVVKMNSKSNAP--RKD-----DSSENEKGHLPMNPKSDN--

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Figure 10

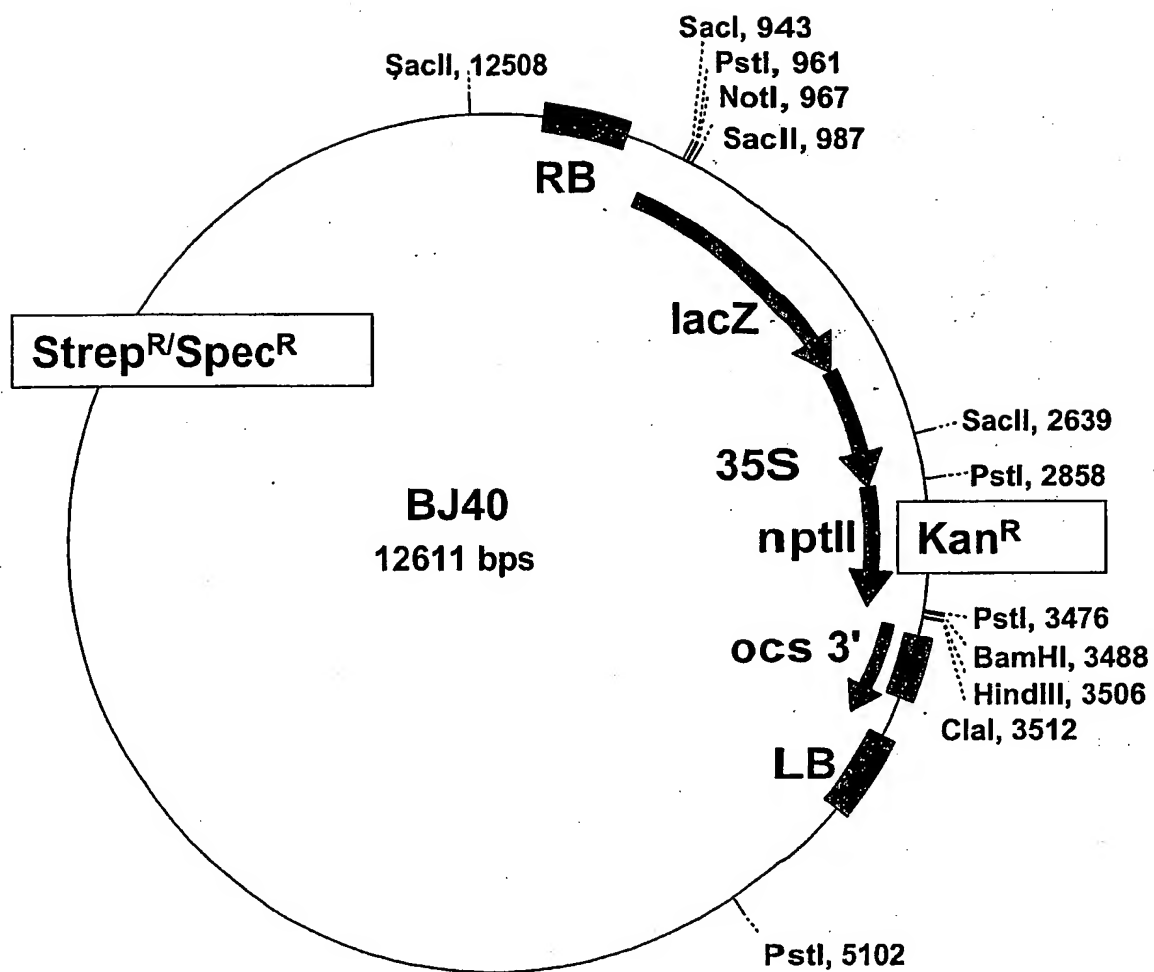
Vectors used for cloning

10A BJ60



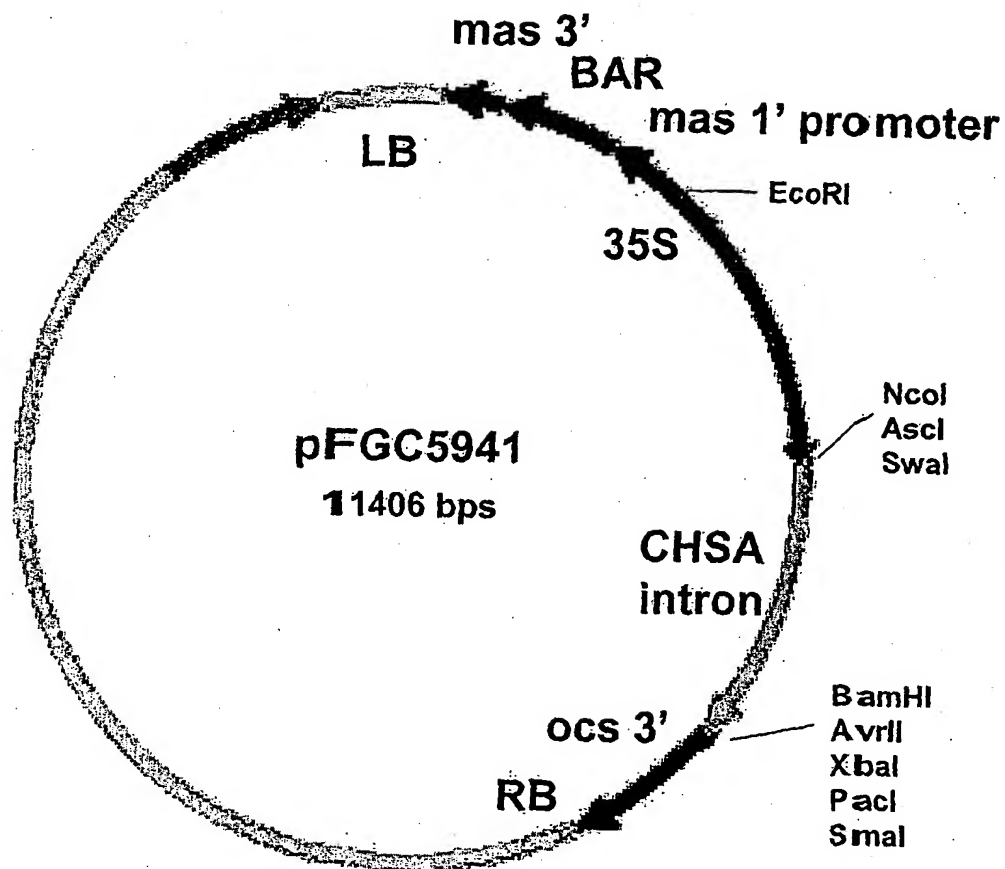
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10B BJ40



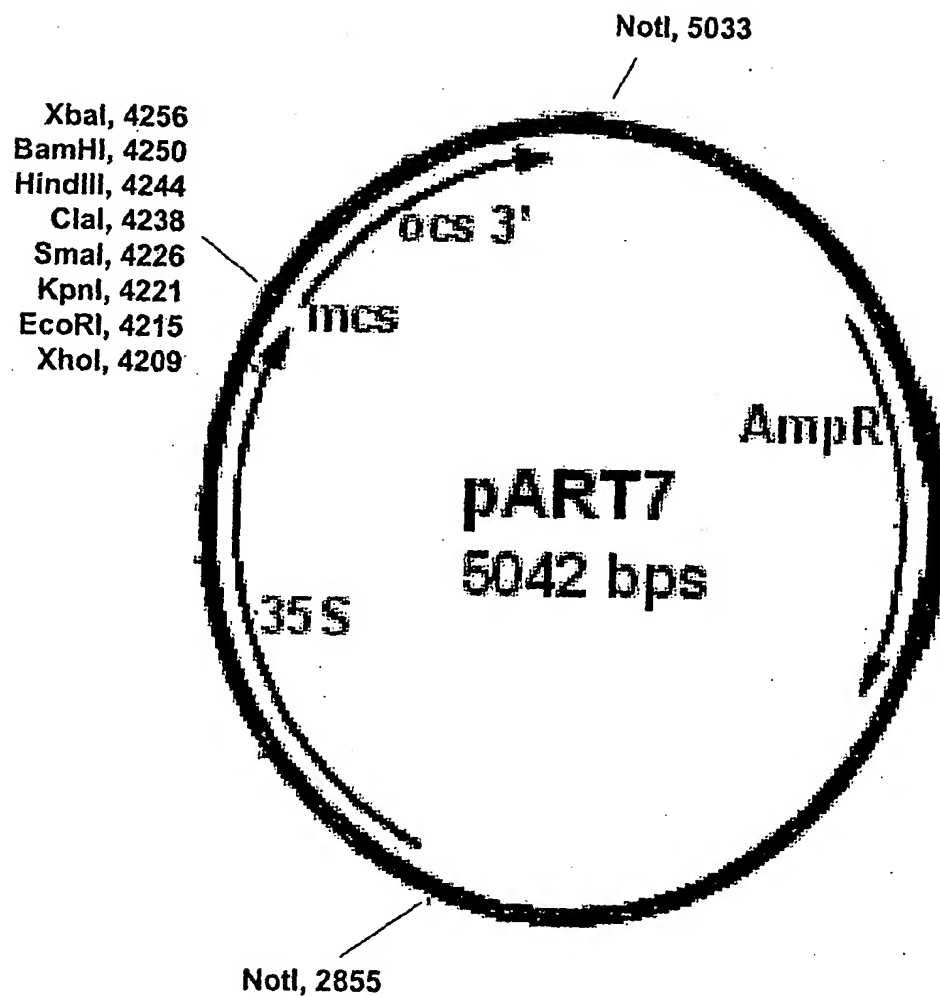
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10C pFGC5941



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10D pART7



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0E BJ36

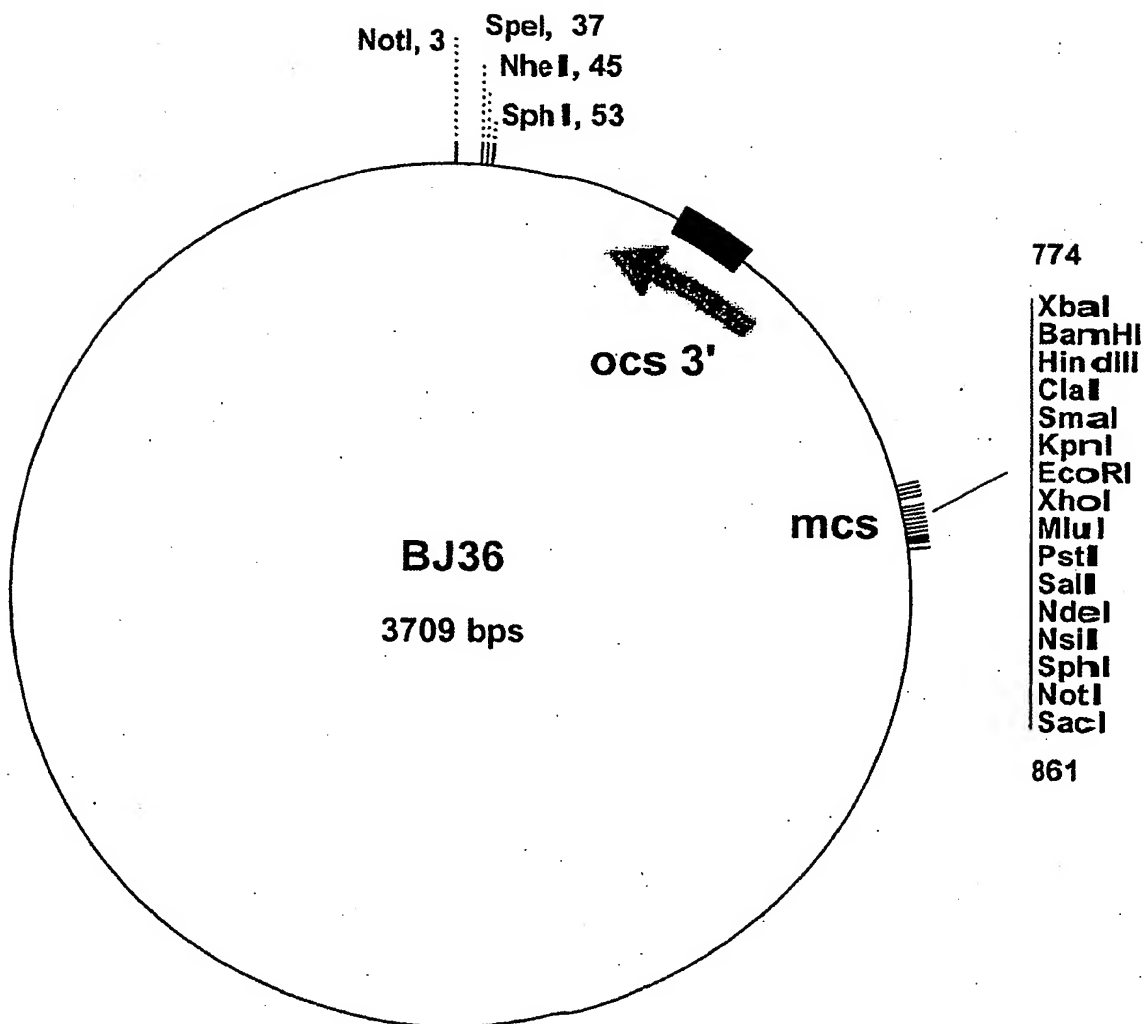
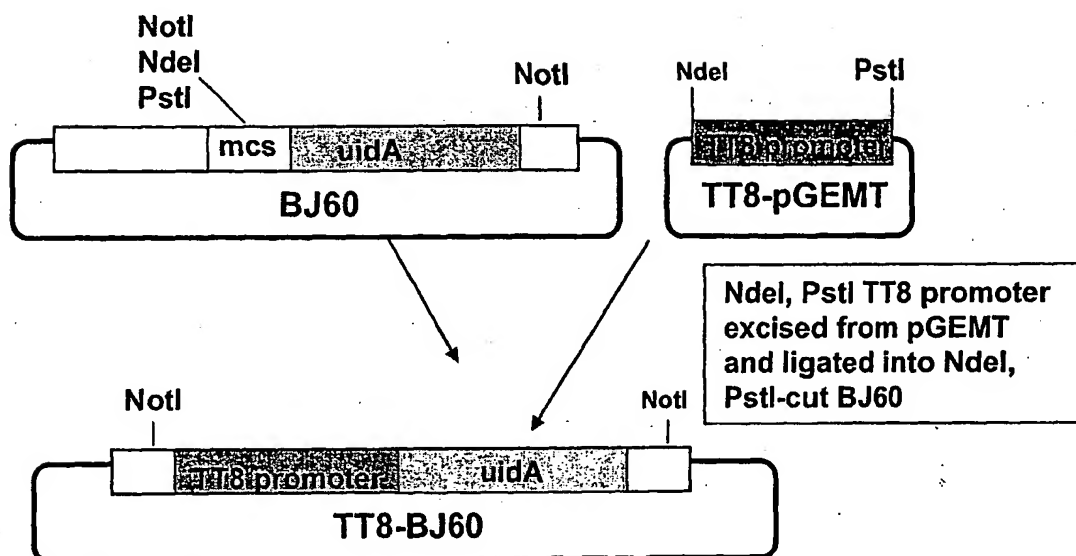


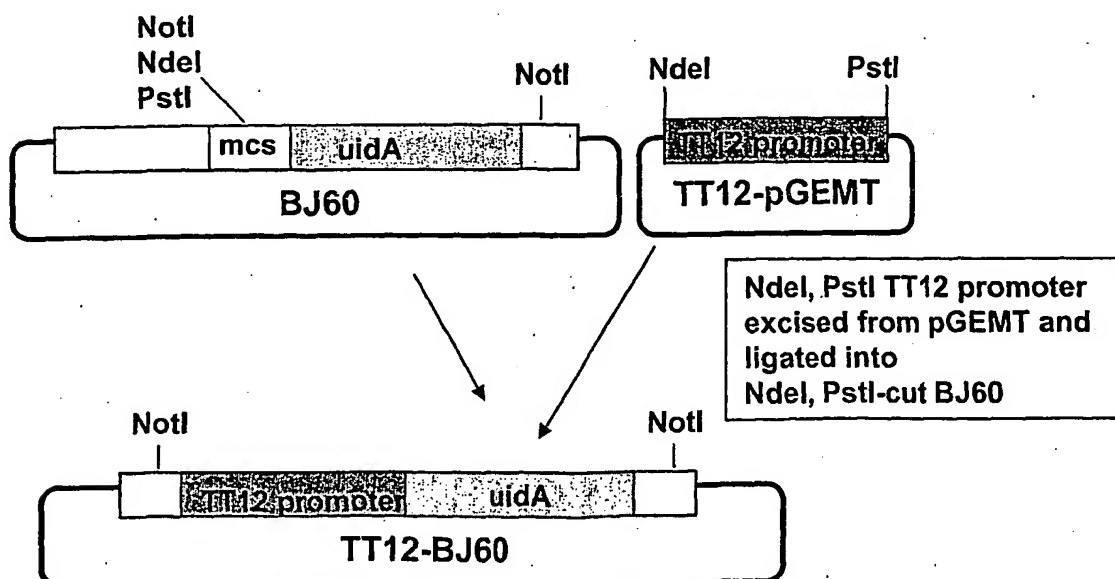
Figure 11

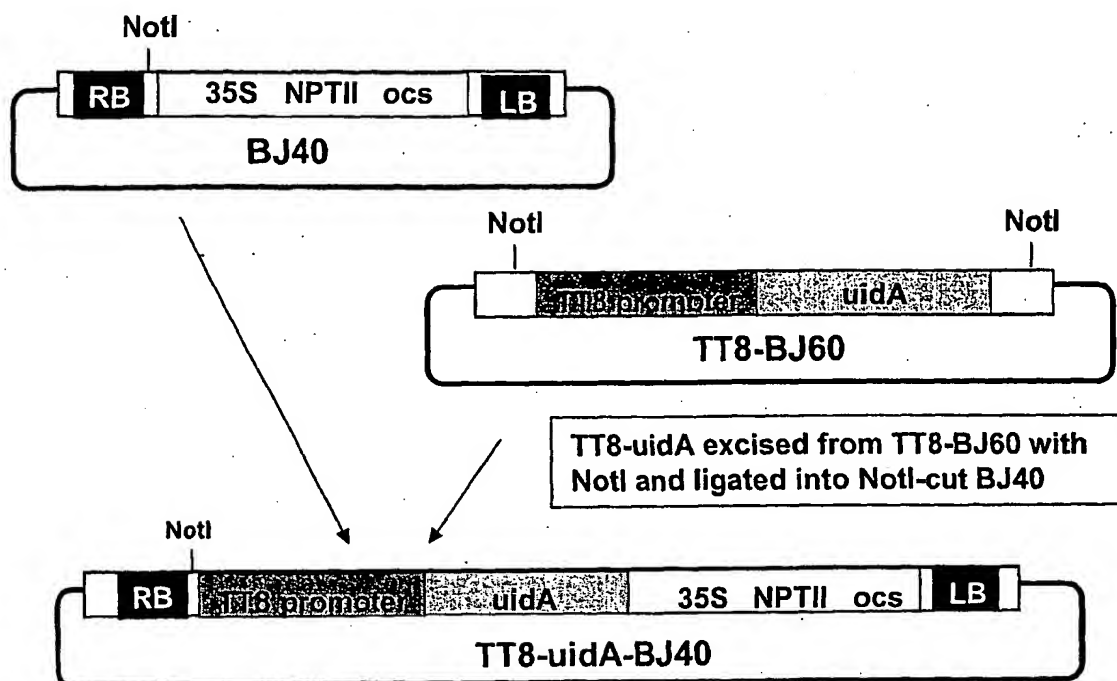
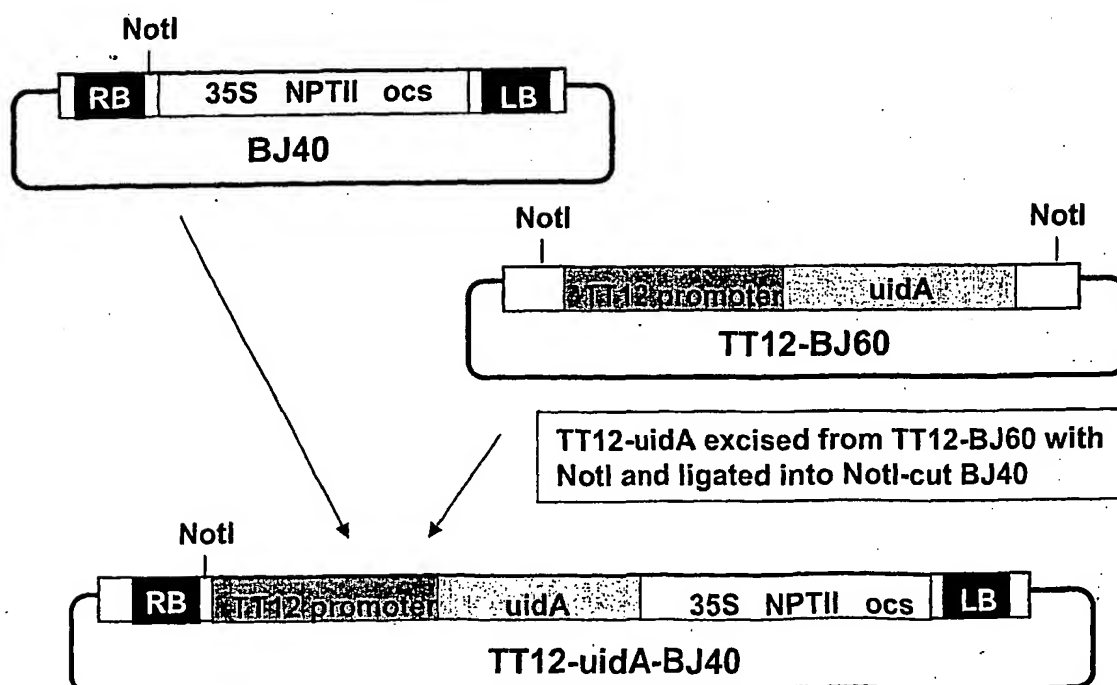
Cloning strategy, Example 3

Example 3a(i)



Example 3a(ii)



Example 3b(i)**Example 3b(ii)**

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Figure 12

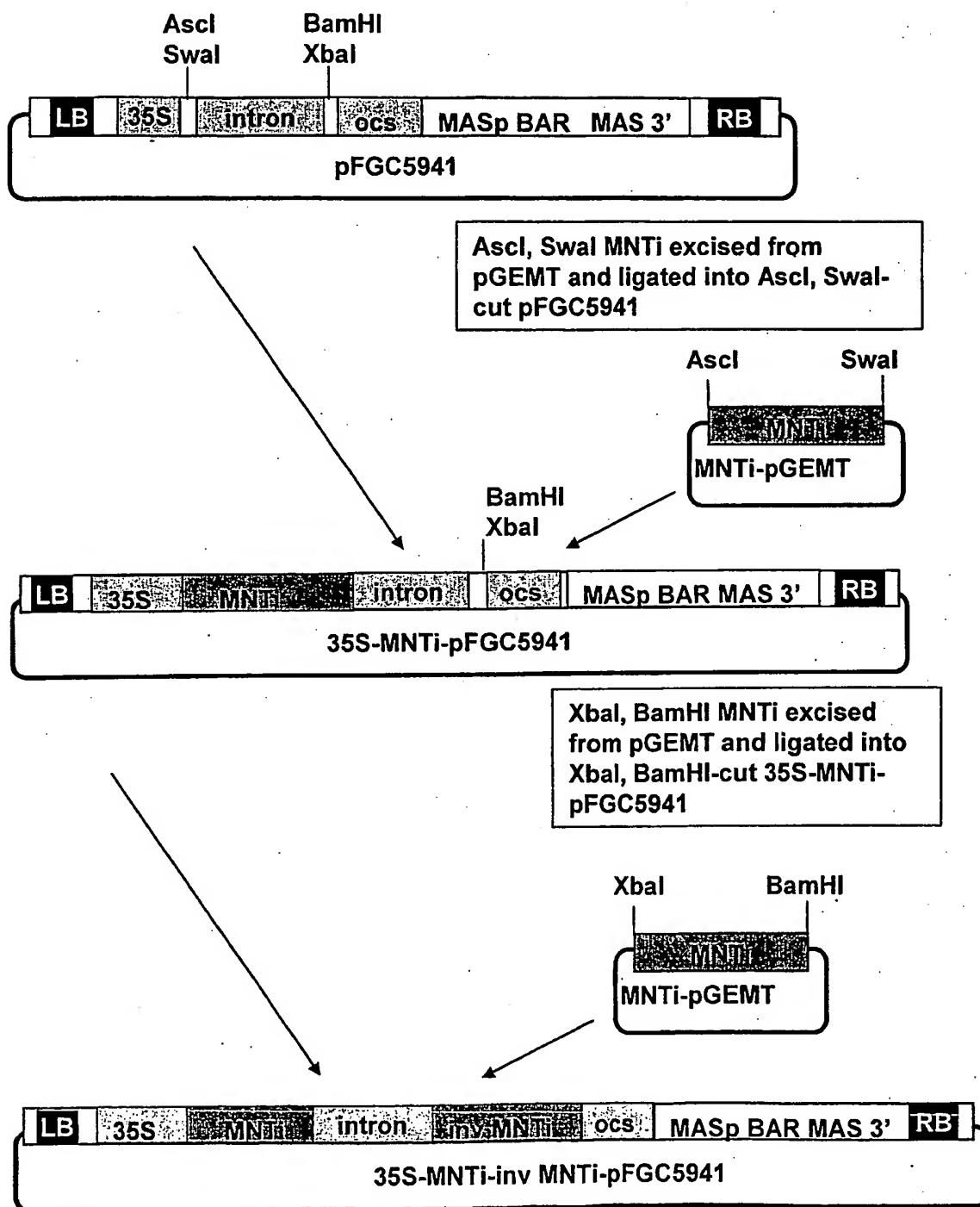
TT12::uidA



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Figure 13A

Cloning strategy, Example 4

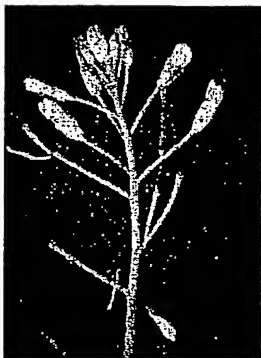


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Figure 13B

Plants transformed with the *35S::MNT* RNAi vector
Example 4

Primary inflorescence



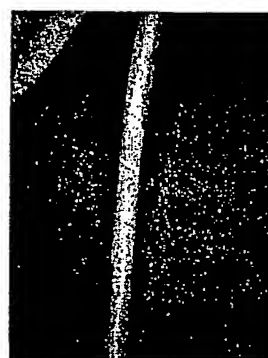
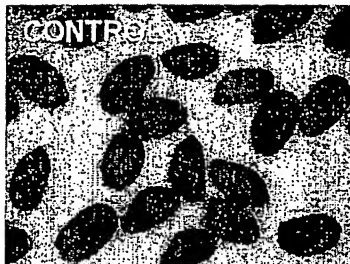
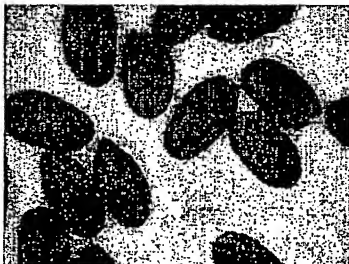
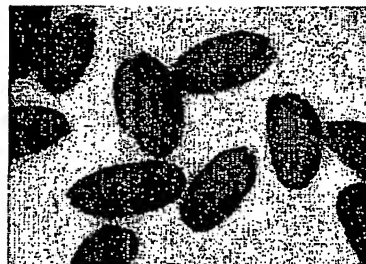
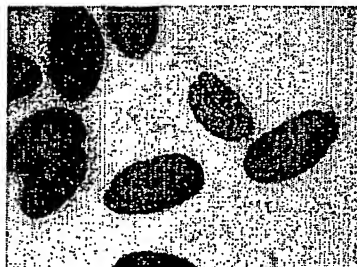
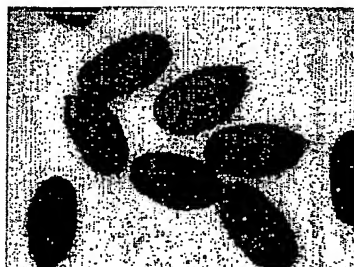
wild-type Col-3

*35S::MNT* RNAi
line 3

Primary inflorescence stem



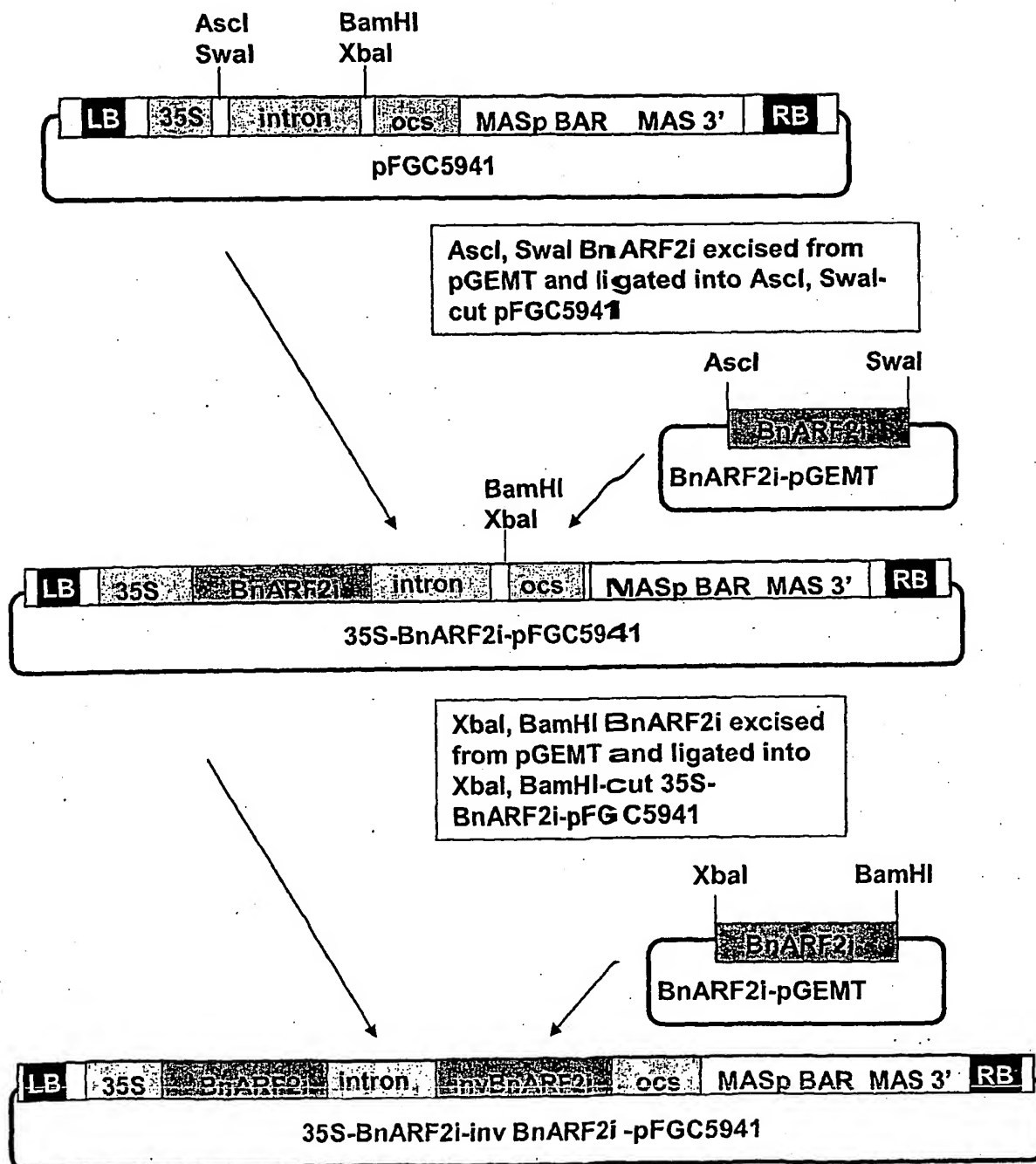
wild-type Col-3

*35S::MNT* RNAi
line 3wild-type Col-3
mean wt 13.8 μ g*35S::MNT* RNAi line 1
mean wt 34.0 μ g*35S::MNT* RNAi line 2
mean wt 35.6 μ g*35S::MNT* RNAi line 3
mean wt 34.8 μ g*35S::MNT* RNAi line 4
mean wt 36.7 μ g

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Figure 14

Cloning strategy, Example 5

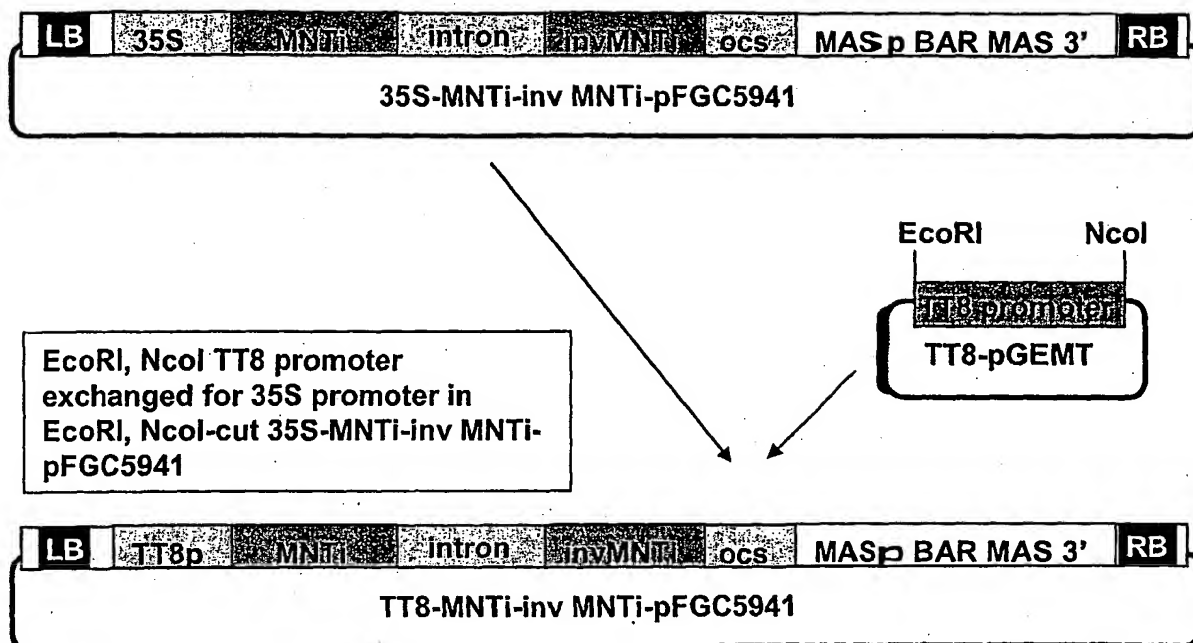


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Figure 15

Cloning strategy, Example 6

Example 6a(i)



Example 6a(ii)

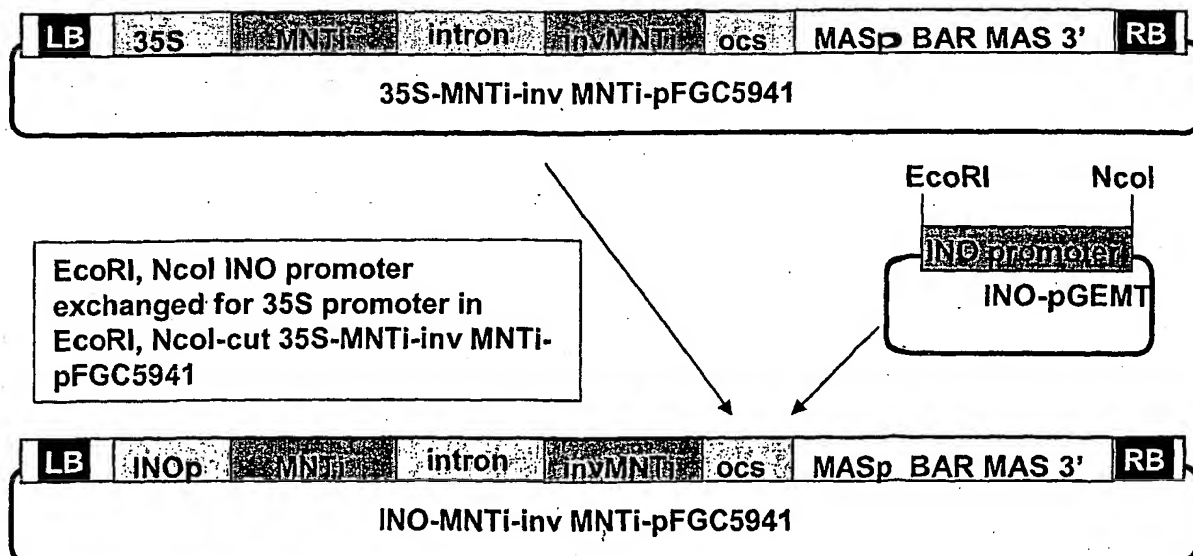
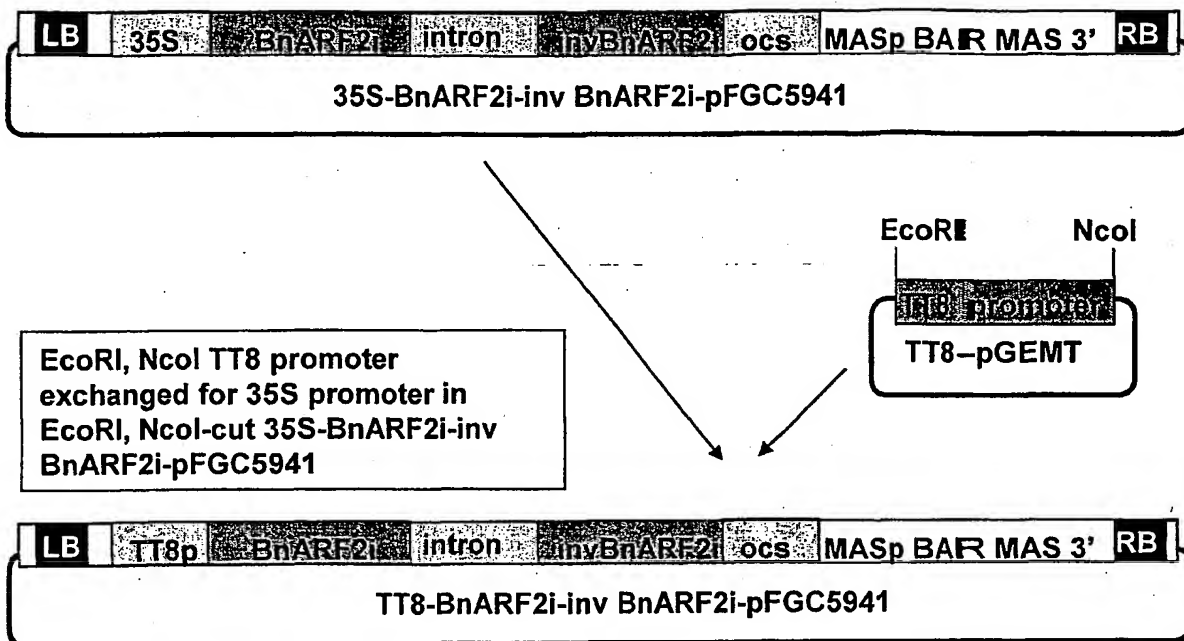


Figure 16

Cloning strategy, Example 7

Example 7a(i)



Example 7a(ii)

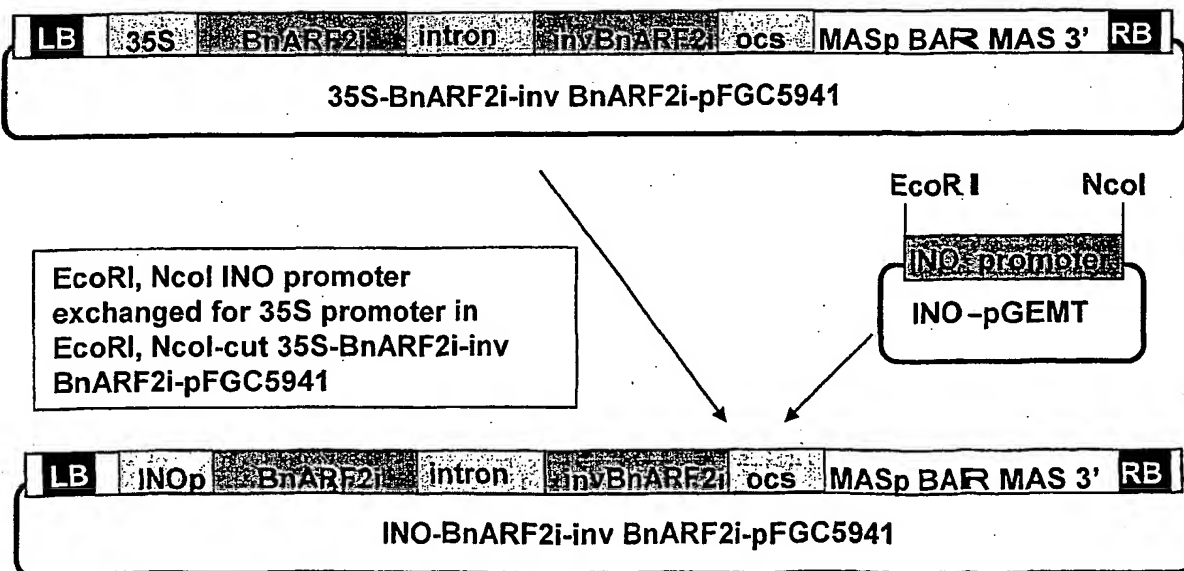
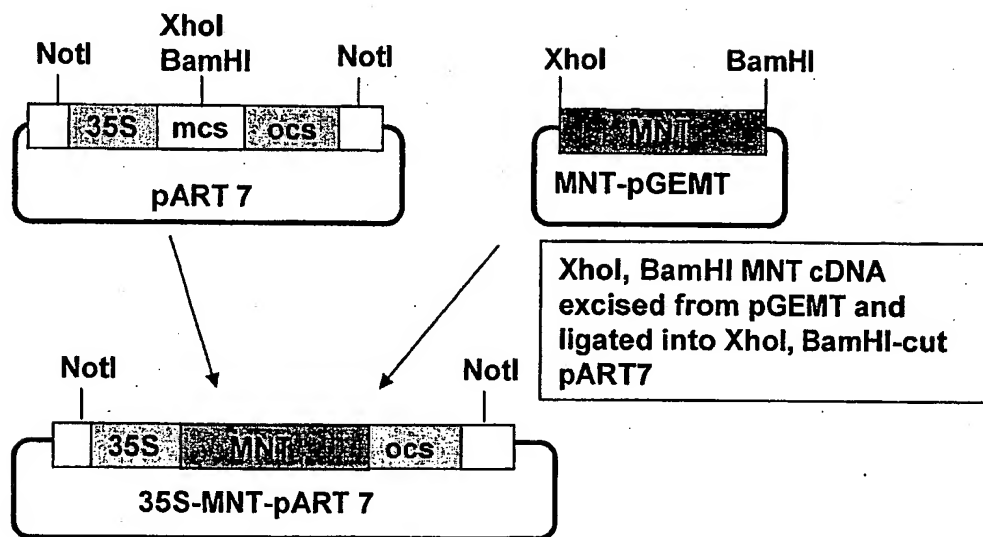


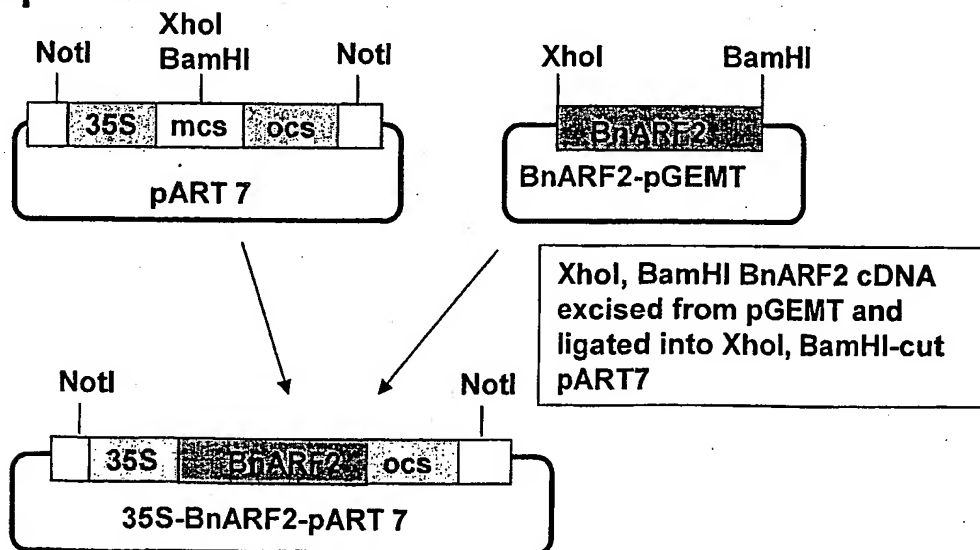
Figure 17A

Cloning strategy, Examples 8, 9

Example 8a



Example 9a



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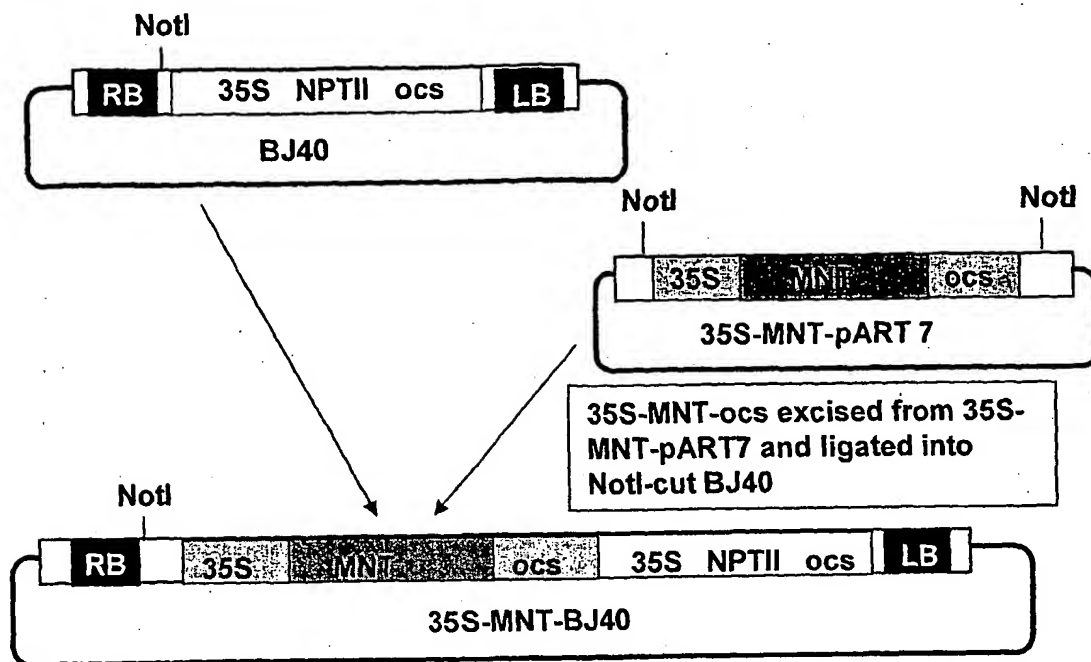
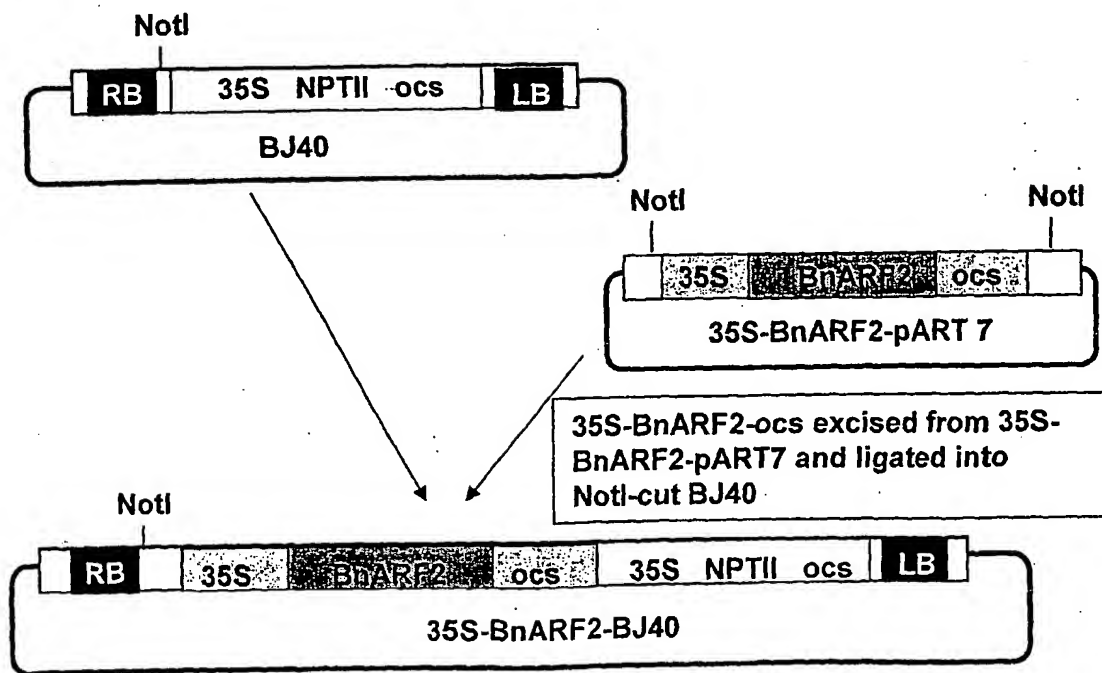
Example 8b**Example 9b**

Figure 17B

Analysis of wild-type plants transformed with the *35S::MNT* vector

Example 8

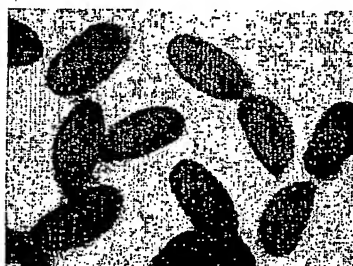
35S::MNT



wild-type Col-3
mean wt 15.0 μ g



35S::MNT line 1
mean wt 23.1 μ g



35S::MNT line 2
mean wt 28.7 μ g



35S::MNT line 3
mean wt 24.6 μ g

Semiquantitative RT-PCR

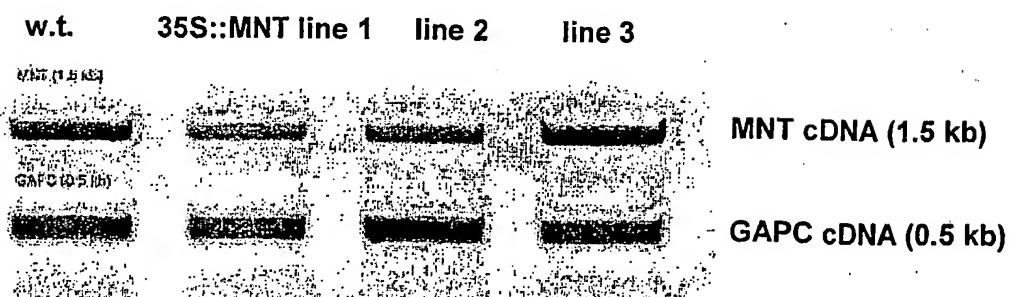
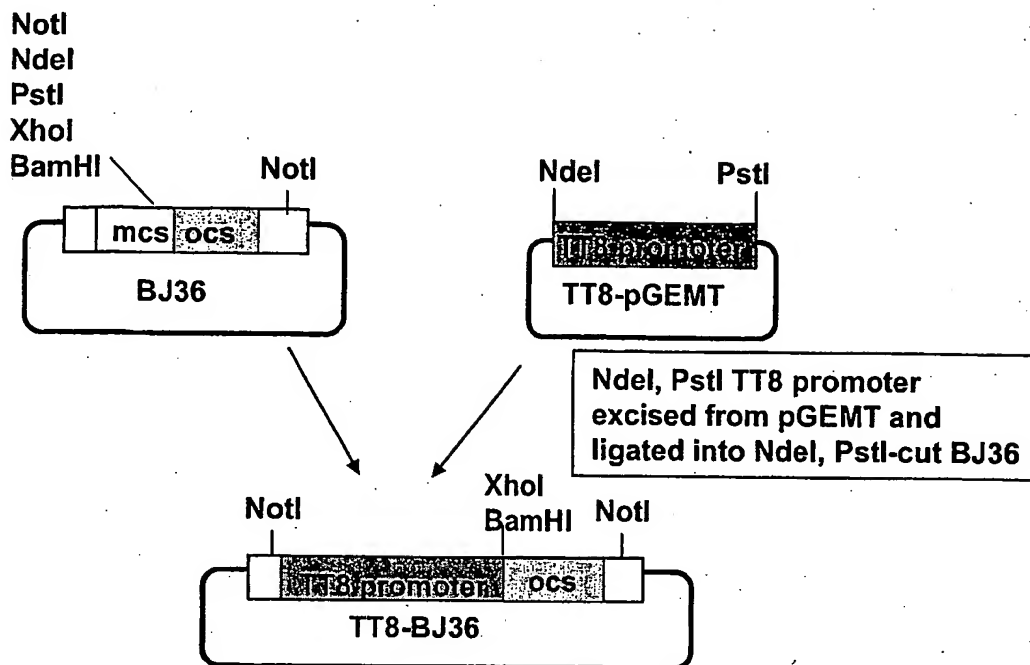


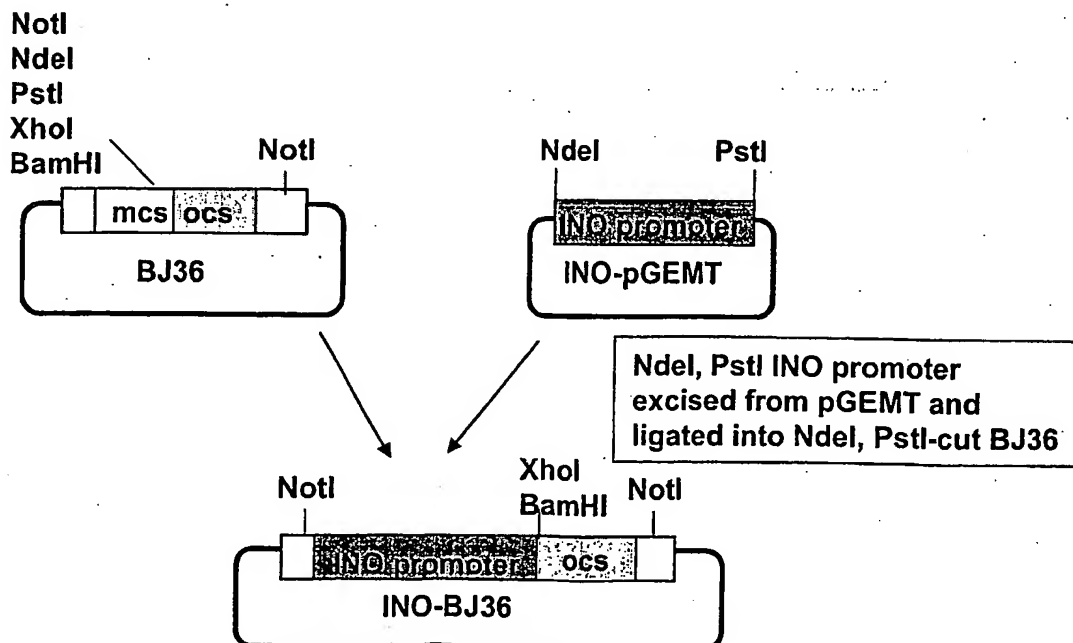
Figure 18

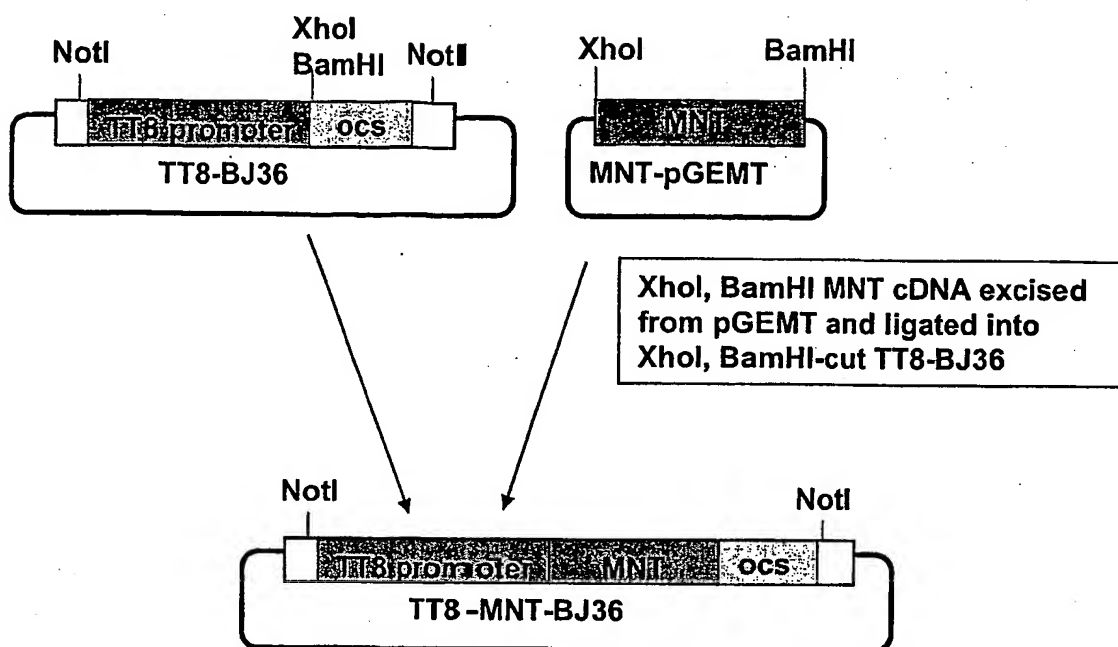
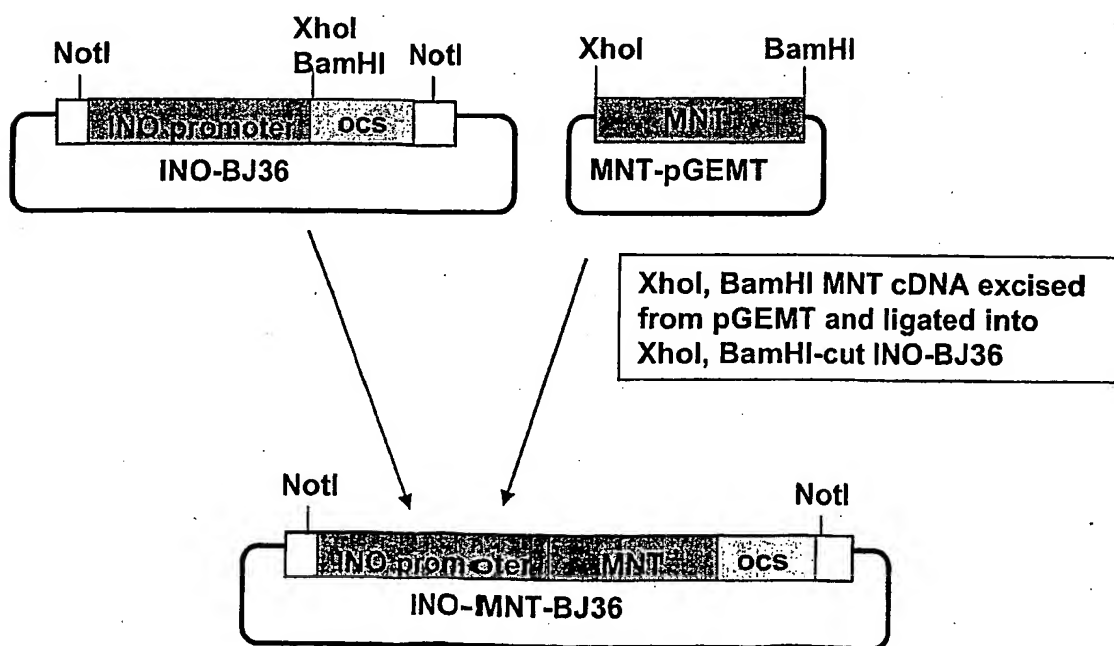
Cloning strategy, Example 10

Example 10a(i)

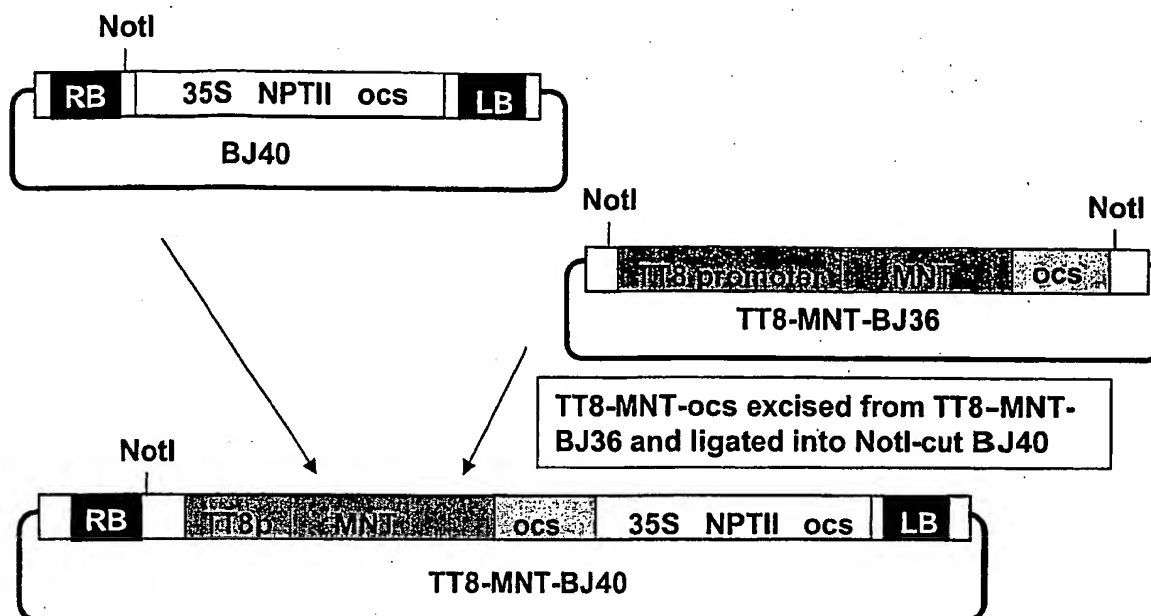


Example 10a(ii)



Example 10b(i)**Example 10b(ii)**

Example 10c(i)



Example 10c(ii)

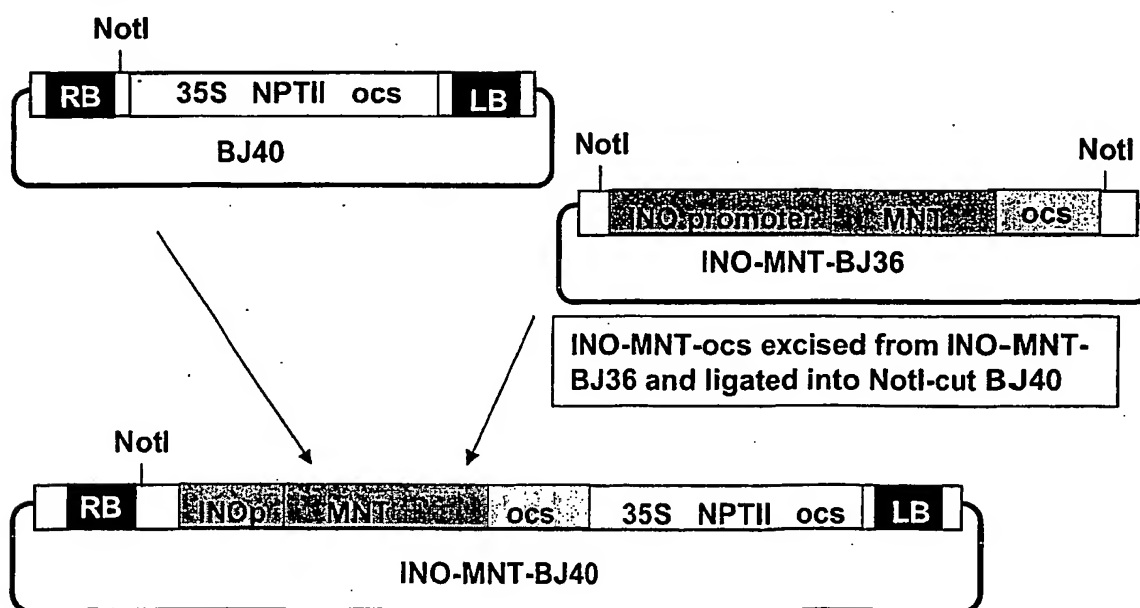
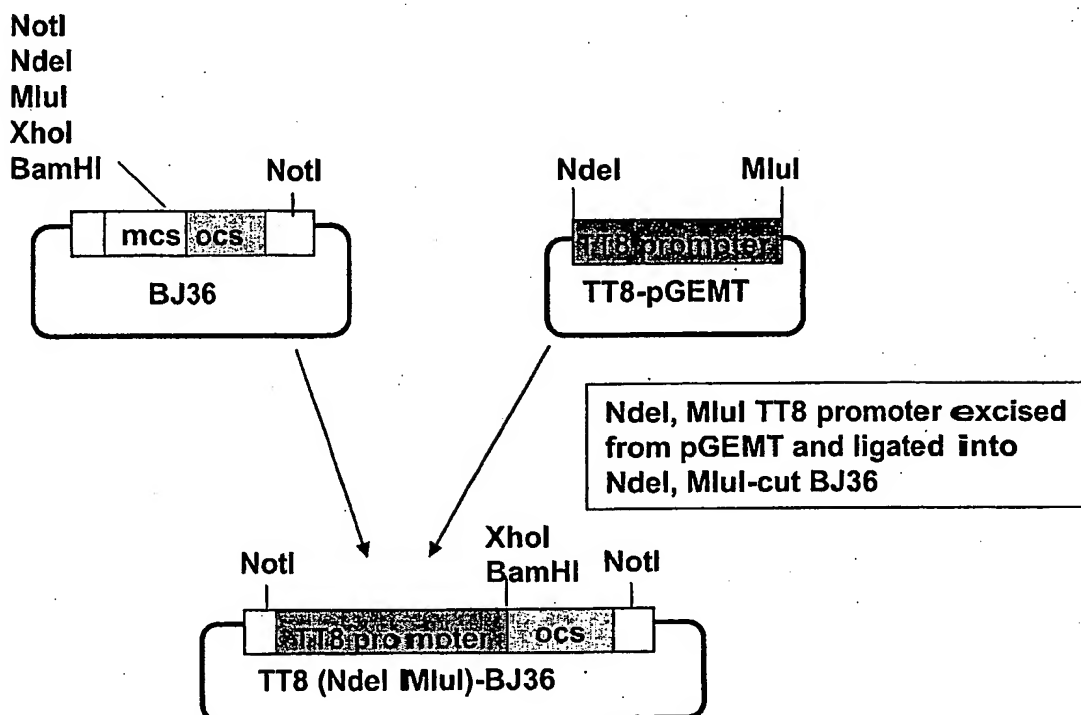


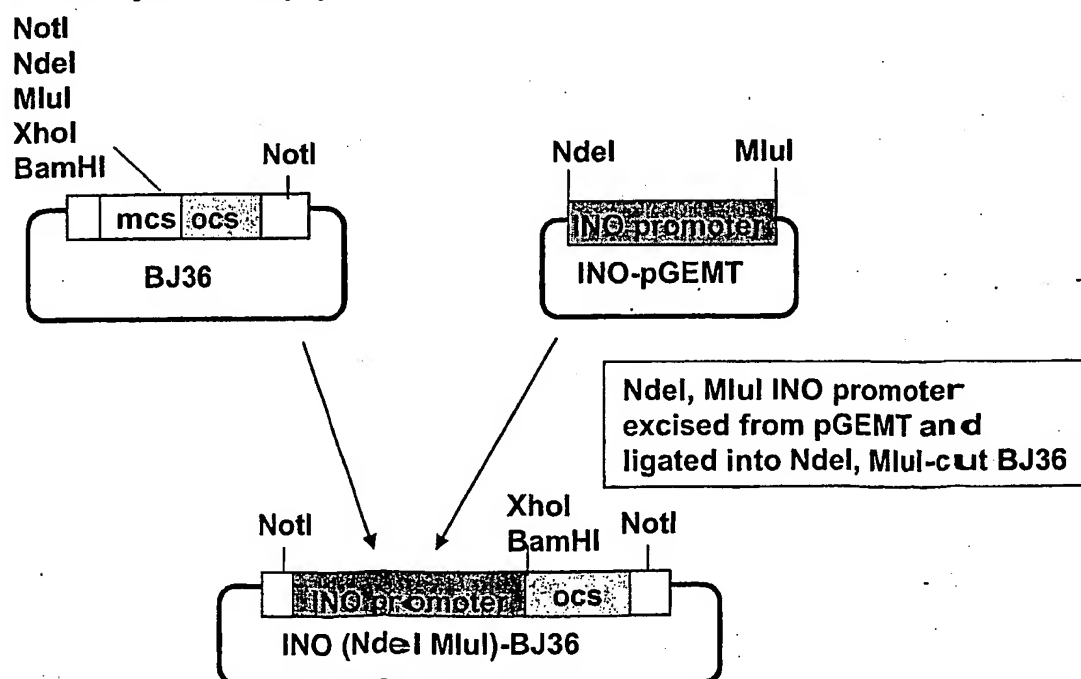
Figure 19

Cloning strategy, Example 11

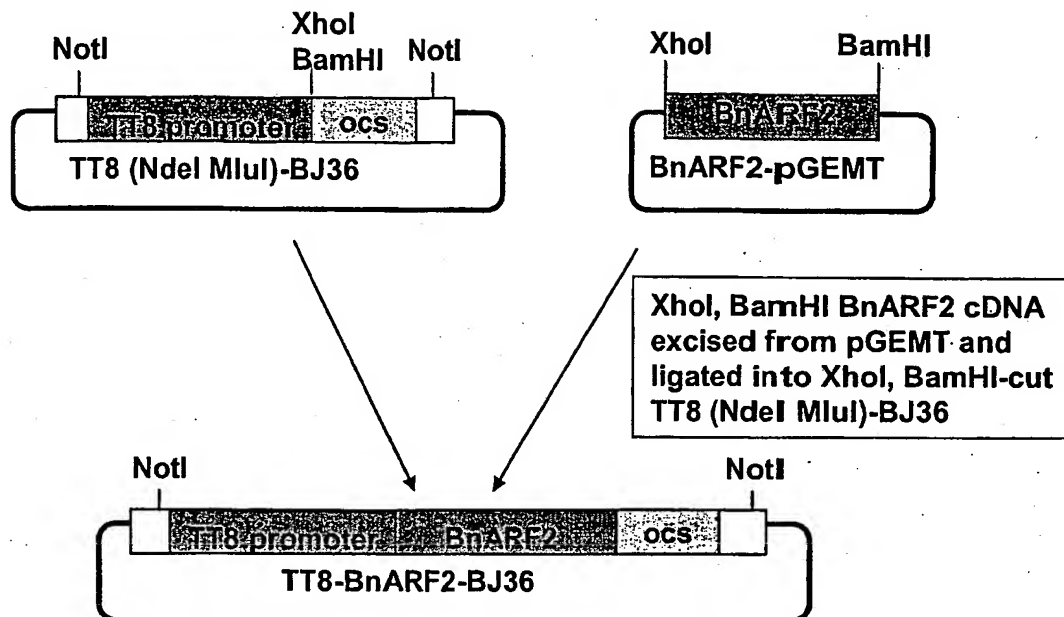
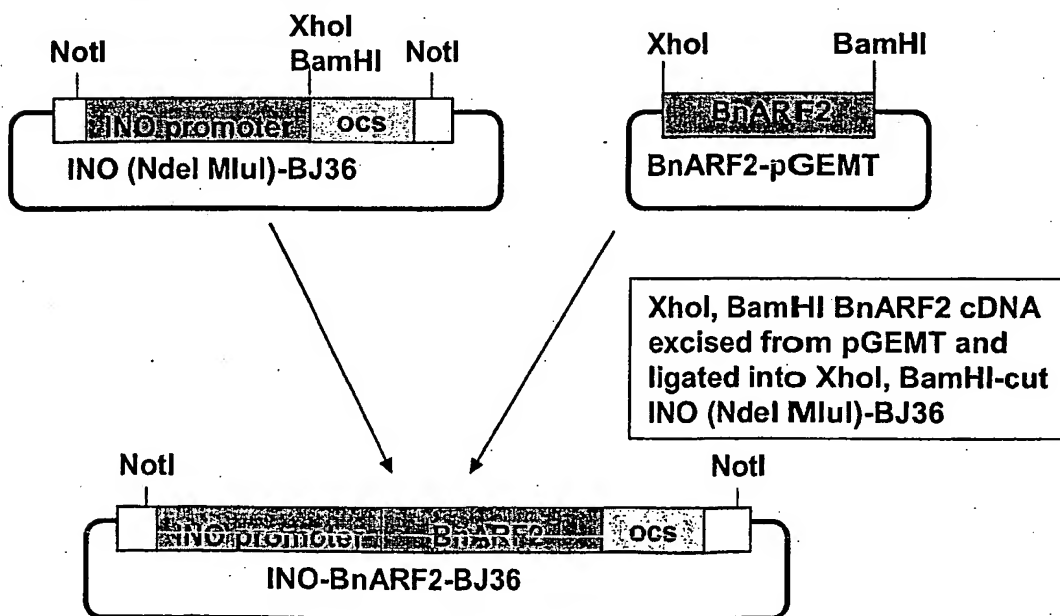
Example 11a(i)



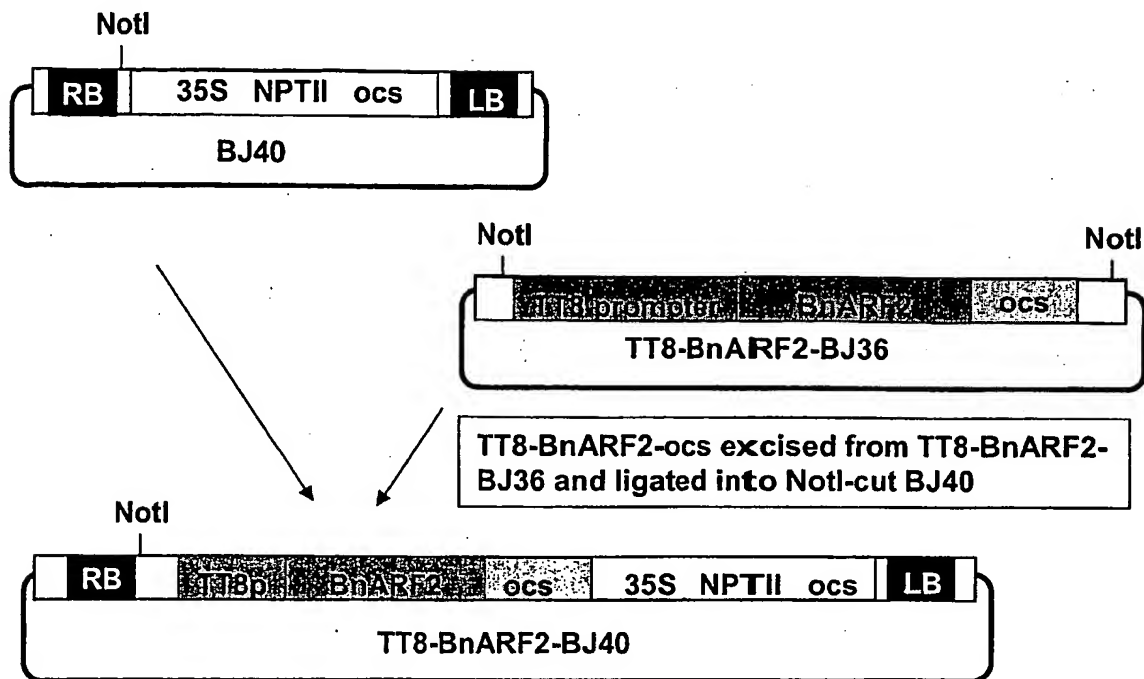
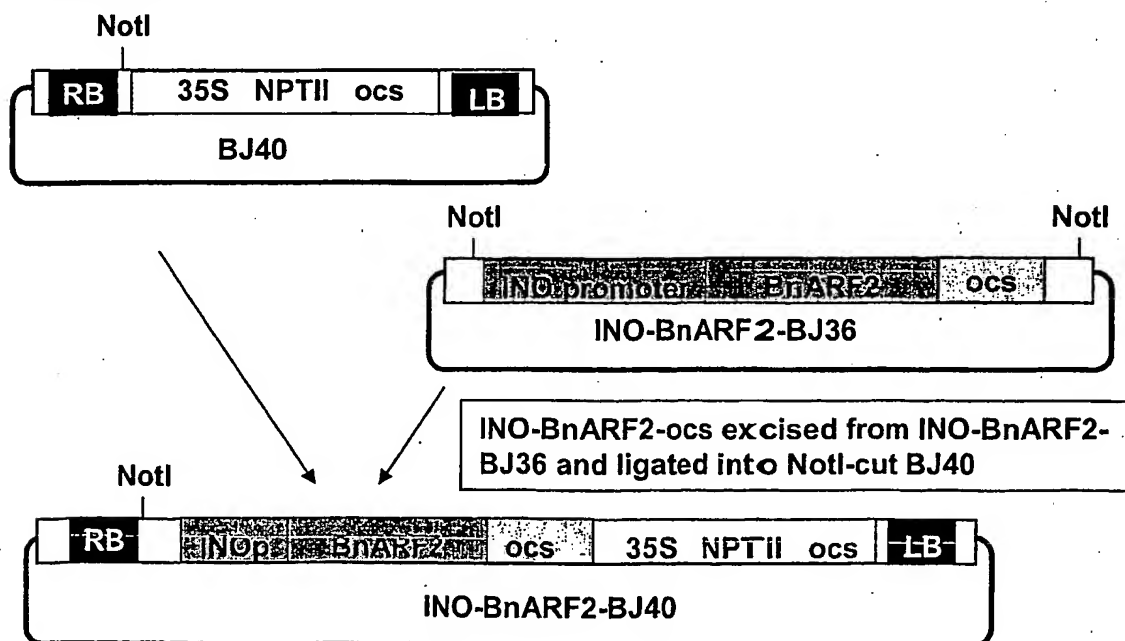
Example 11a(ii)



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Example 11b(i)**Example 11b(ii)**

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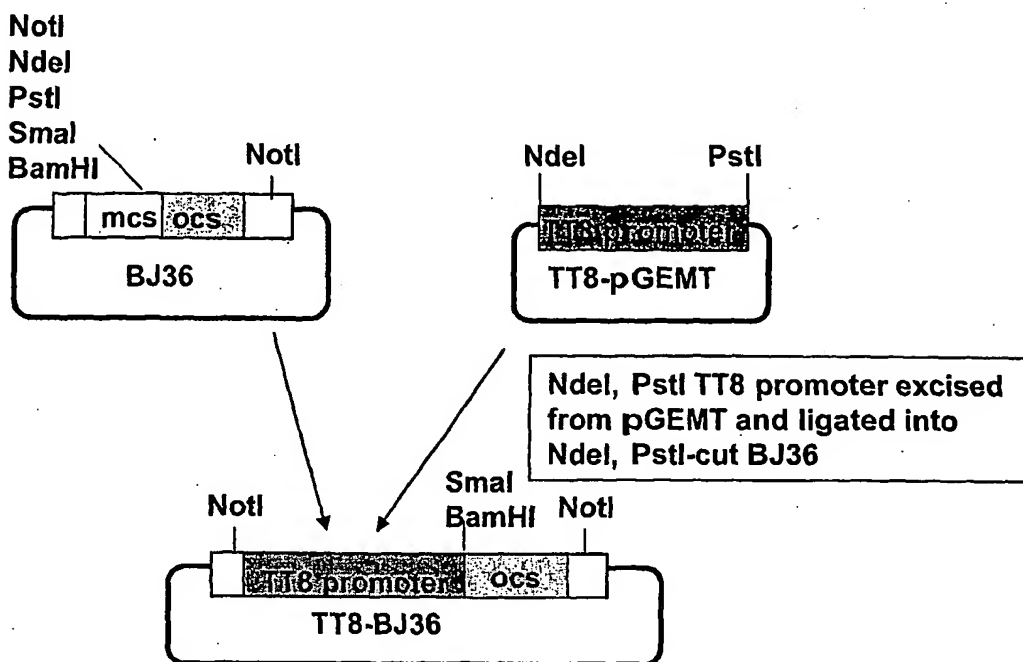
Example 11c(i)**Example 11c(ii)**

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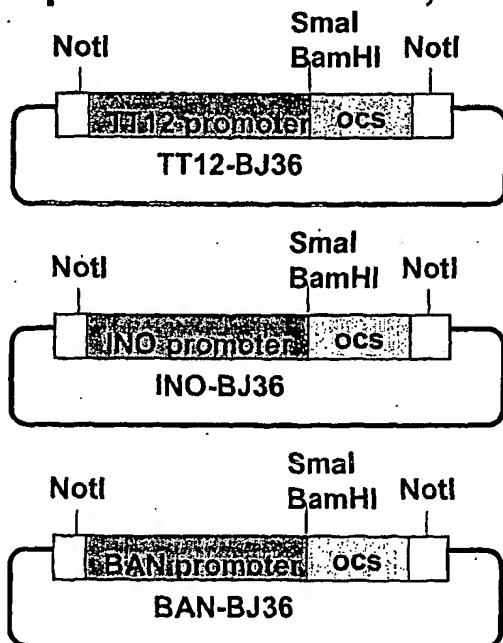
Figure 20

Cloning strategy, Examples 12, 13

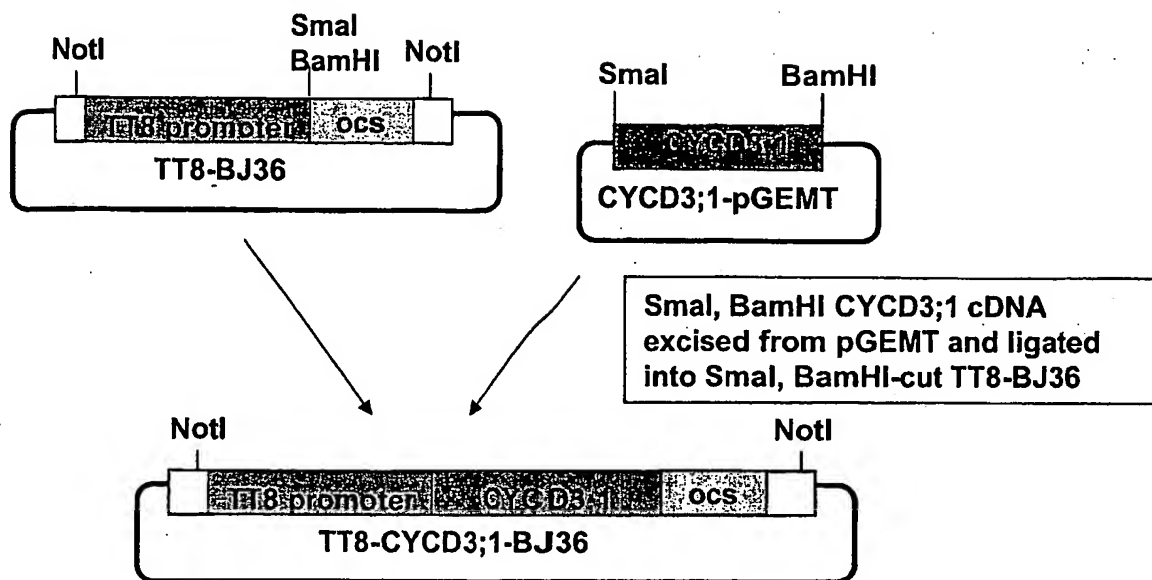
Examples 12a, 13a



Repeat process with TT12, INO, BAN promoters



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Examples 12b, 13b

Repeat process with IPT1, ANT, CYCB1;1 cDNAs and TT12, INO, BAN promoters

TT8-IPT1-BJ40

INO-CYCD3;1-BJ40

TT8-ANT-BJ40

INO-IPT1-BJ40

TT8-CYCB1;1-BJ40

INO-ANT-BJ40

TT12-CYCD3;1-BJ40

INO-CYCB1;1-BJ40

TT12-IPT1-BJ40

BAN-CYCD3;1-BJ40

TT12-ANT-BJ40

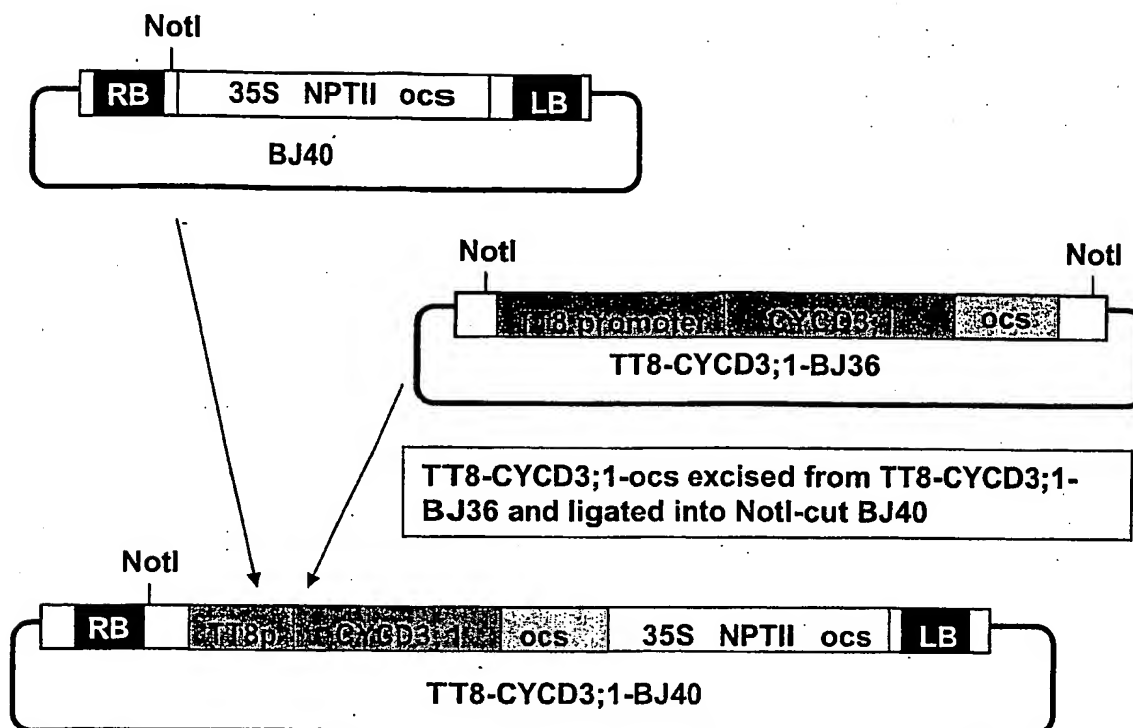
BAN-IPT1-BJ40

TT12-CYCB1;1-BJ40

BAN-ANT-BJ40

BAN-CYCB1;1-BJ40

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Example 12c, 13c

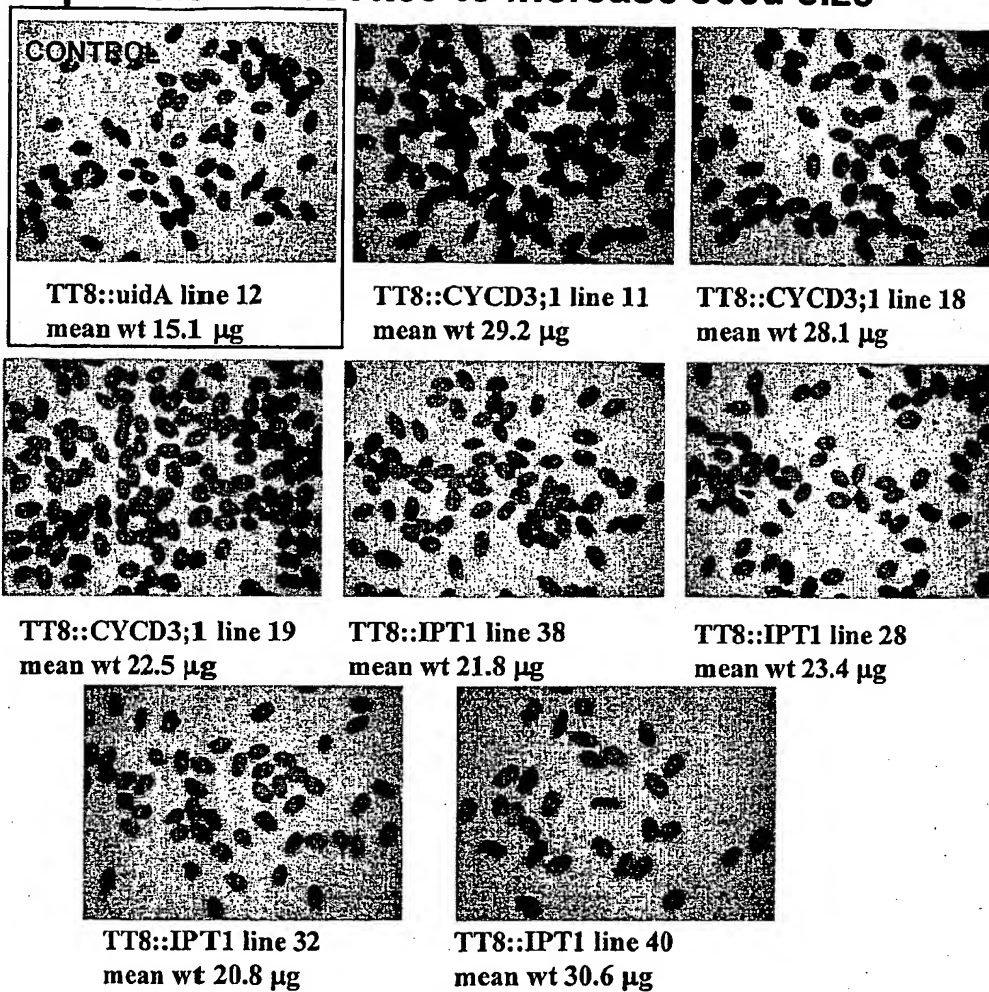
Repeat process with all BJ36 constructs shown in Example 12b

TT8-IPT1-BJ40	INO-CYCD3;1-BJ40
TT8-ANT-BJ40	INO-IPT1-BJ40
TT8-CYCB1;1-BJ40	INO-ANT-BJ40
TT12-CYCD3;1-BJ40	INO-CYCB1;1-BJ40
TT12-IPT1-BJ40	BAN-CYCD3;1-BJ40
TT12-ANT-BJ40	BAN-IPT1-BJ40
TT12-CYCB1;1-BJ40	BAN-ANT-BJ40
	BAN-CYCB1;1-BJ40

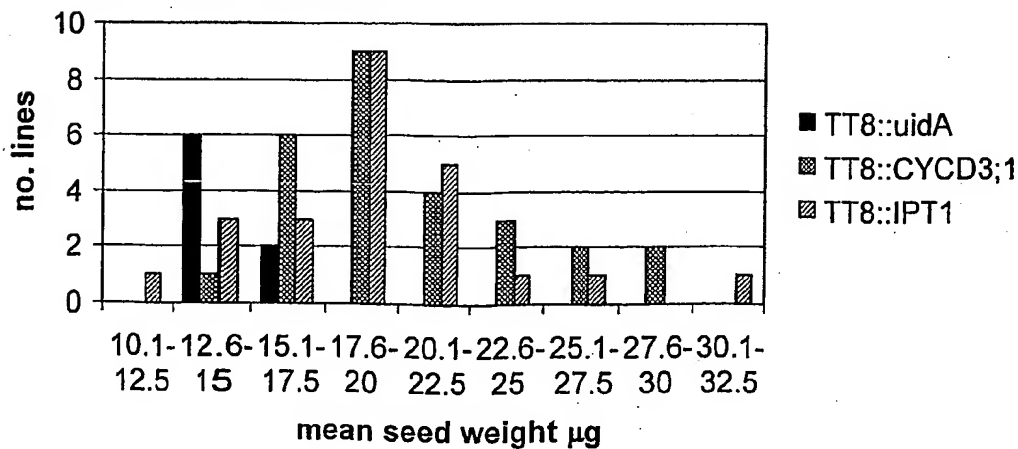
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Figure 21A

Expression cassettes to increase seed size



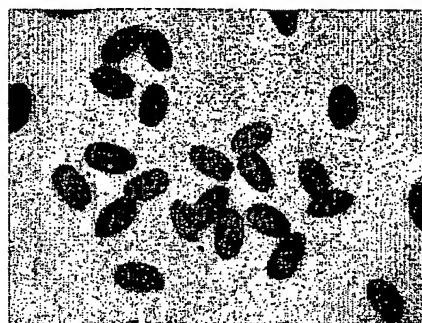
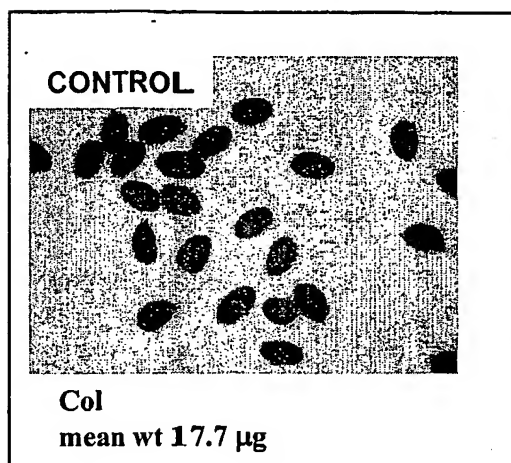
Distribution of seed weights in TT8::uidA (control), TT8::CYCD3;1, and TT8::IPT1 families



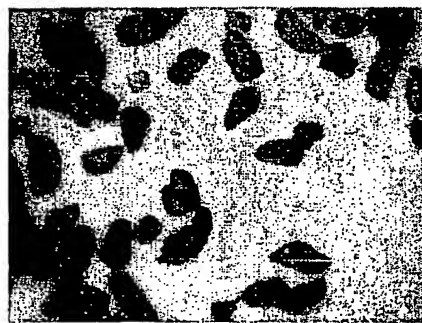
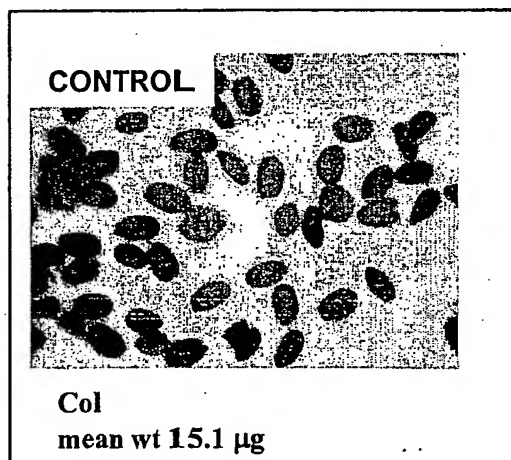
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Figure 21B

Expression cassettes to increase seed size



BAN::CYCD3;1 line 1
mean wt 23.9 μ g

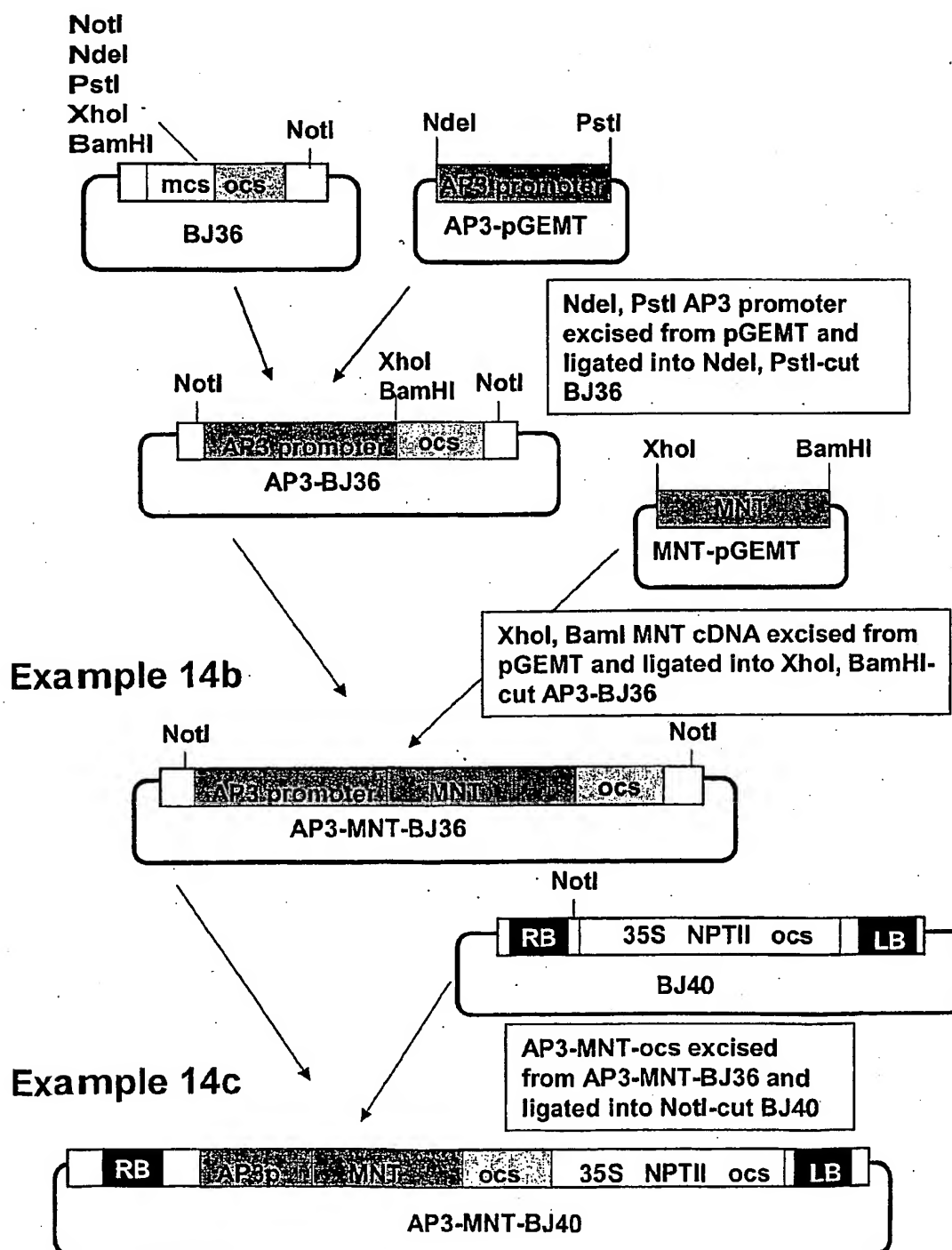


INO::IPT1 line 9
mean wt 23.1 μ g

Figure 22

Cloning strategy, Example 14

Example 14a

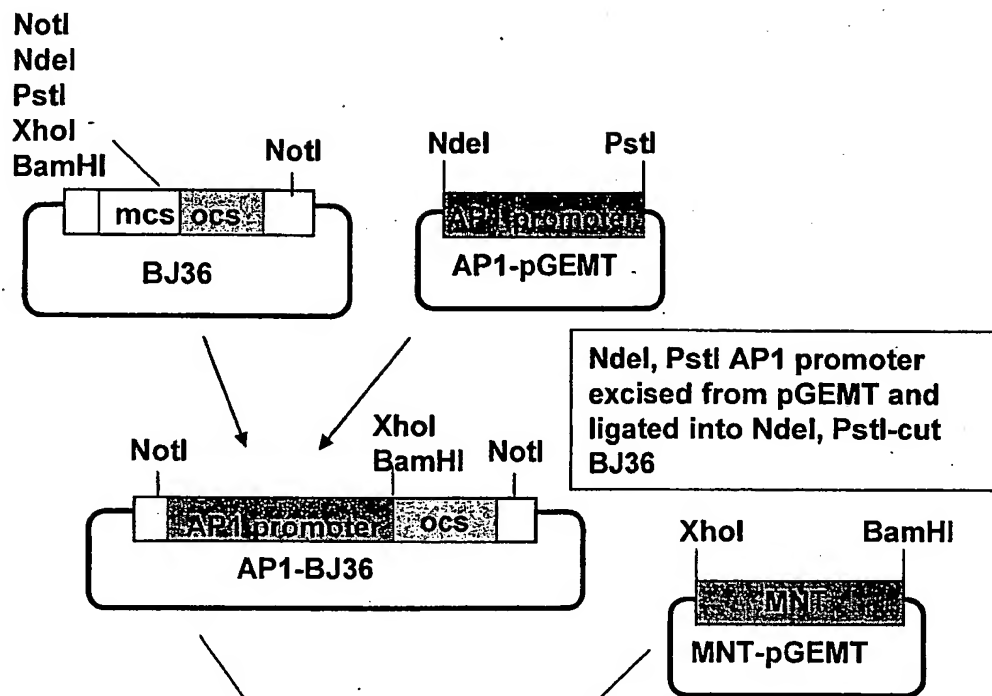


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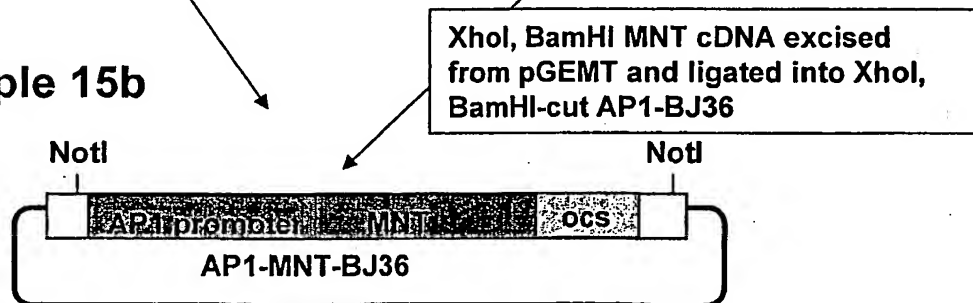
Figure 23

Cloning strategy, Example 15

Example 15a



Example 15b



Example 15c

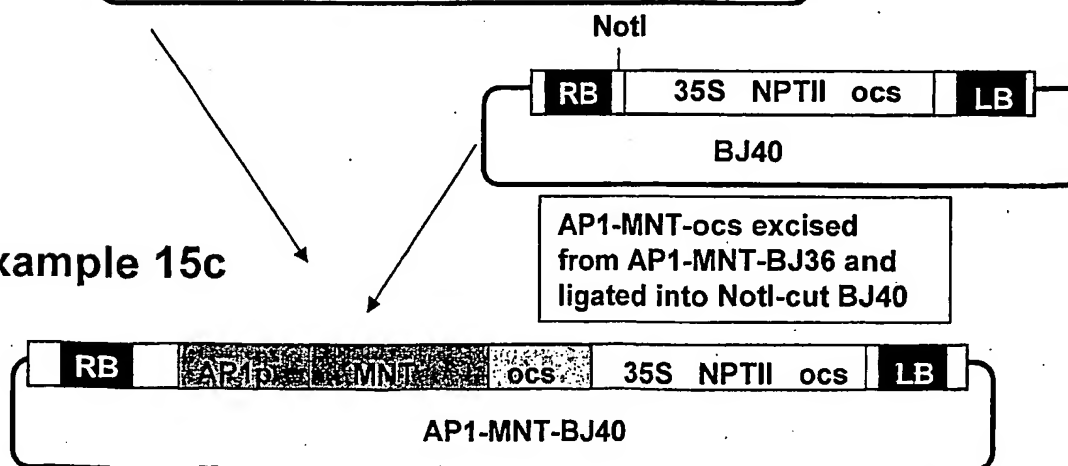
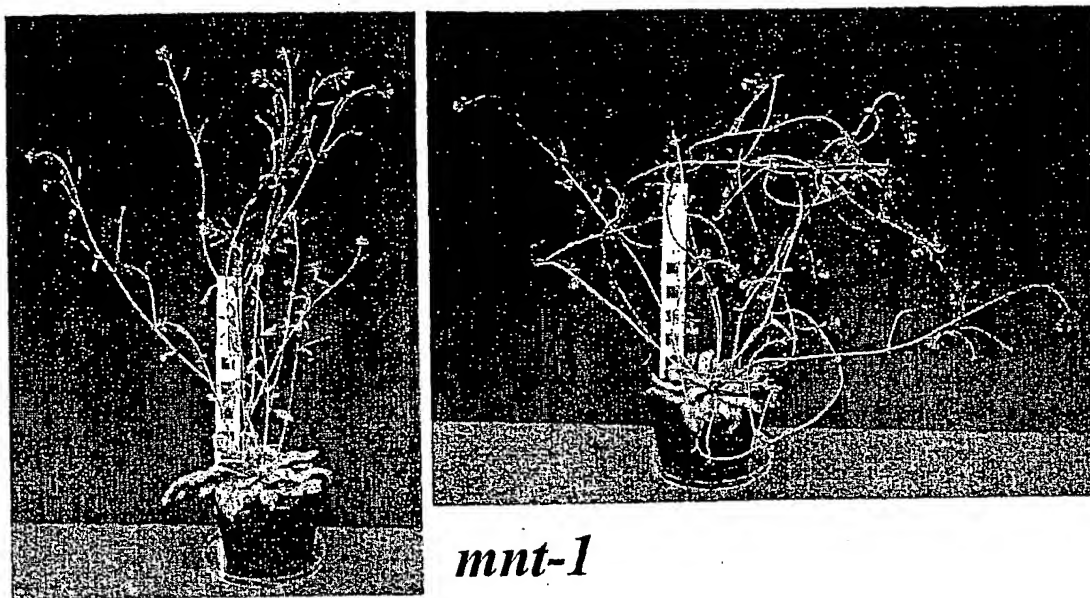


Figure 24

24A Wild-type vs *mnt-1* plants



w.t.

24B Wild-type vs *mnt-1* stems, transverse sections

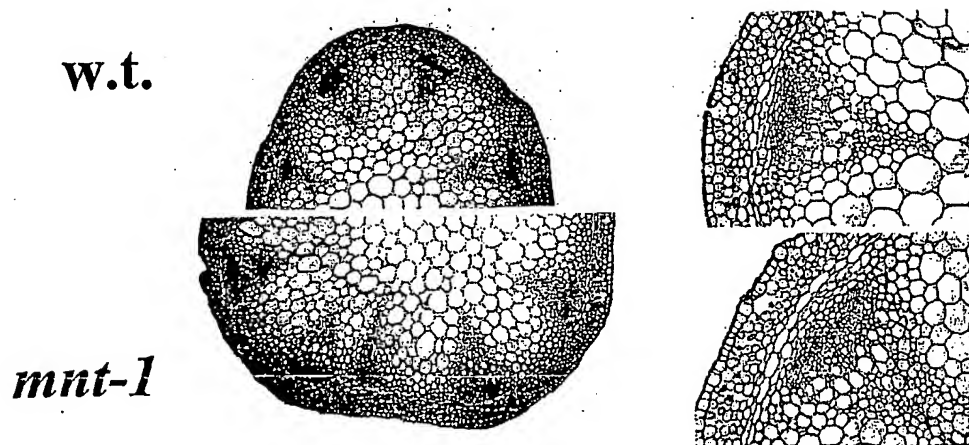
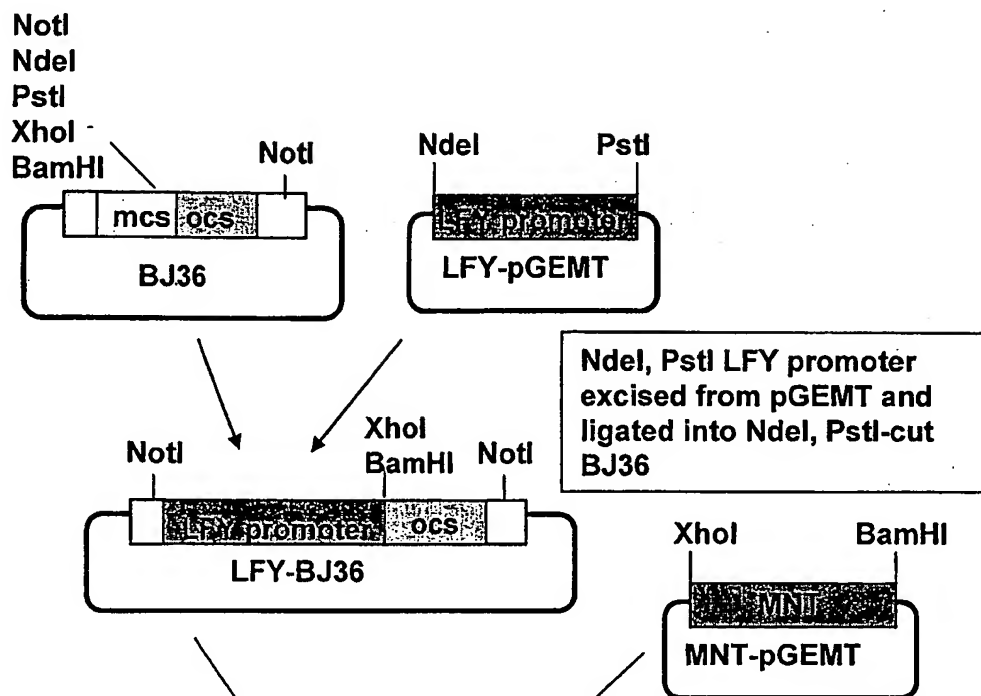


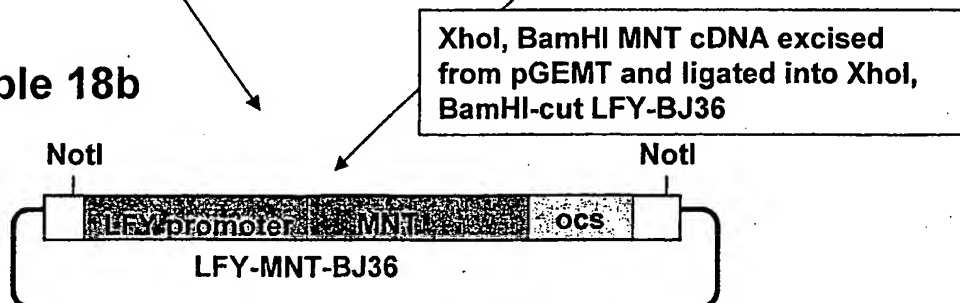
Figure 25

Cloning strategy, Example 18

Example 18a



Example 18b



Example 18c

